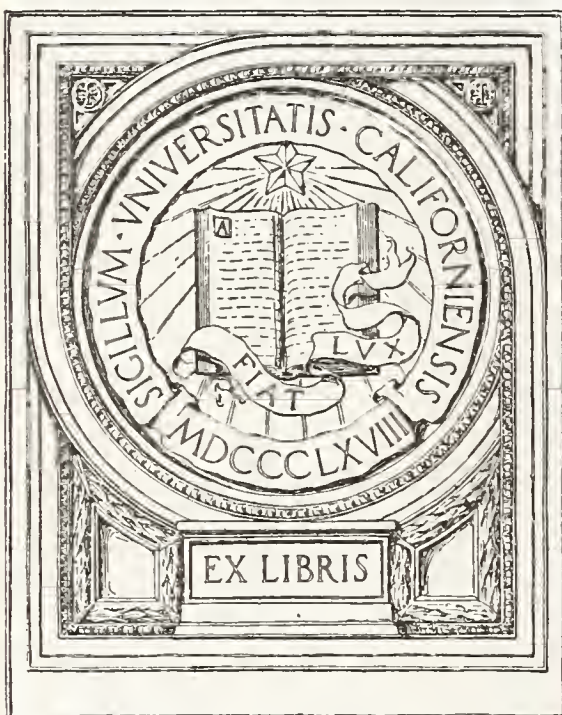


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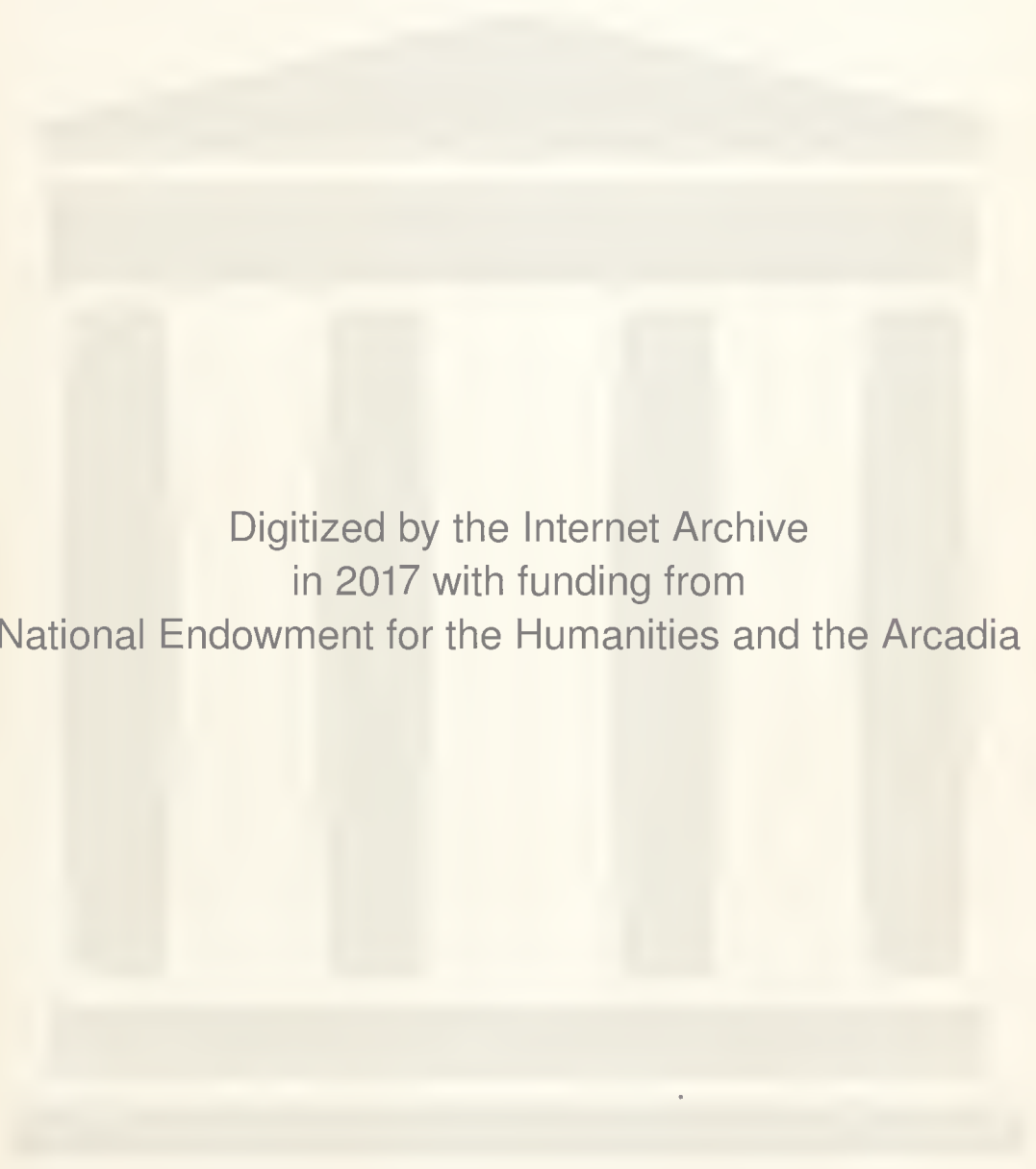


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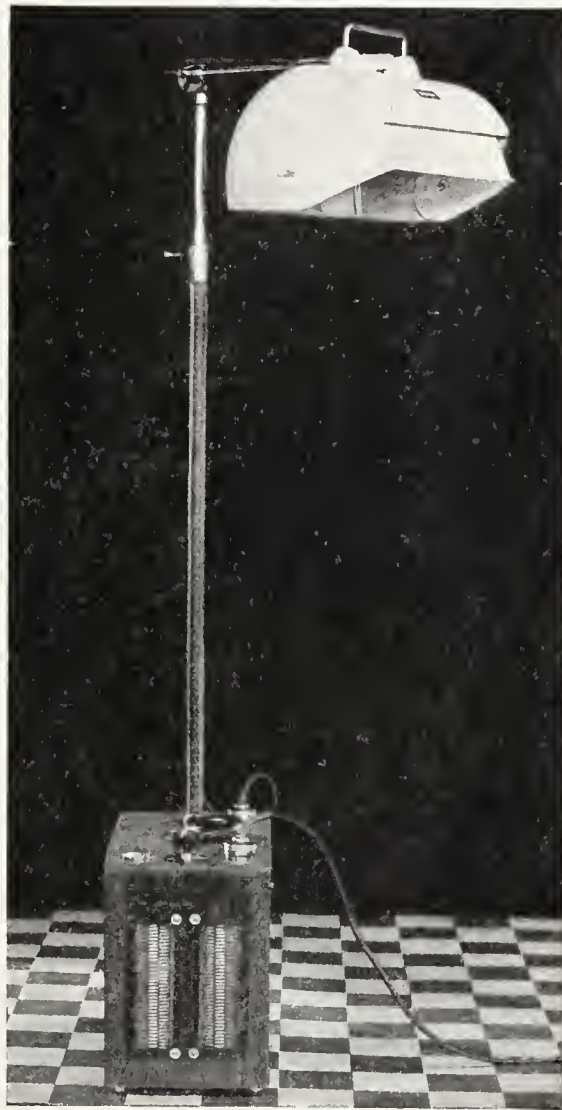
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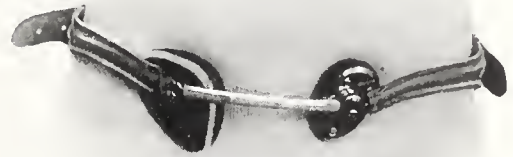
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Mental Rating Twins—The meaning of the phrase, as much alike as twins, has been tested so far as mentality goes on 158 pairs of twins in New York City. The tests were conducted at Columbia University by Gladys Tallman. The mental ratings of the twins were compared with the mentality of brothers and sisters whose ages were one to four years apart. Twins were about twice as much alike mentally as are brothers and sisters of different ages, the tests showed. Boy-girl twins are not so much alike as girl twins or boy twins. And twins of the same sex that look alike are more nearly the same mentally than those that look distinctly different. The twins included sixty-three pairs who looked so much alike that they were almost indistinguishable.—*Science News Letter*.

Diploma Mill Ended—The St. Louis College of Physicians and Surgeons has come to an end, the Supreme Court of Missouri having declared its charter, articles of corporation and franchise forfeited. Since its reestablishment in 1916, this school has been conspicuous in medical diploma mill operations. A new charter was obtained before the Supreme Court had rendered its decision. It appears, therefore, that Missouri's fight to keep its name free from further stain by unqualified physicians is not over.—*Journal A. M. A.*

New Snake Serum—Dr. Afranio de Amarai, formerly chief of the Sao Paulo Serum Institute of Brazil, has perfected a snake serum which is declared to be effective against the bites of the three types of poisonous snakes of North America—rattlers, moccasins, and copperheads. The discovery was made at a snake farm near Philadelphia, and the findings have been confirmed through tests by the United States Public Health Service. The serum is described as effective if injected within twelve to twenty-four hours after the snake bite.—*M. J. and Record*.

There are about 20,000 Mongoloid idiots in the United States.—*Colorado Med.*

BOOKS RECEIVED

(Reviews on page 106)

Practical Otology. By Morris Levine, M. D. Review copy by the courtesy of the publishers, Messrs. Lea & Febiger, Philadelphia.

An Outline History of Ophthalmology. By Thomas Hall Shastid, M. D. Review copy by the courtesy of the author.

Diseases of the Skin and Syphilis. By Albert Strickler, M. D. Review copy by courtesy of the publishers, Messrs. F. A. Davis Company, Philadelphia.

New and Nonofficial Remedies. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1927. Press of the A. M. A.
Annual Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1926. Press of the A. M. A.

The Life and Work of Sir Patrick Manson. By Philip H. Manson-Bahr and A. Alcock. Review copy by courtesy of the publishers, Messrs. William Wood & Company, New York.

Lister as I Knew Him. By John Rudd Leeson. Review copy by courtesy of the publishers, Messrs. William Wood & Company, New York.

Rabies Vaccine (U. S. S. P.) (Semple Method)—An antirabic vaccine (New and Nonofficial Remedies, 1927, p. 347) prepared according to the general method of David Semple (phenol killed). Marketed in packages of fourteen syringes, each containing 2 cc. The content of a syringe is administered daily over a period of fourteen days. United States Standard Products Co., Woodworth, Wisconsin.—*Journal A. M. A.*, May 21, 1927, p. 1637.

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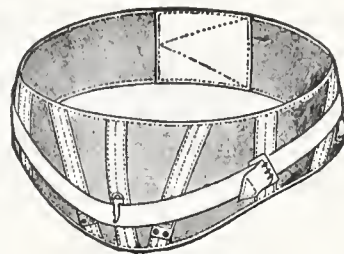
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Pacific Relations Conference—For the second time in its history, delegates from every country bordering on or having interest in the Pacific will gather in Honolulu between July 15 and 29, to discuss frankly though unofficially some of the fundamental problems of economics, immigration, and international relations today confronting the people of the Pacific. It is expected that the conference, held under the auspices of the Institute of Pacific Relations, will be attended by about 150 delegates from the United States, Japan, China, the Philippines, Australia, Great Britain, Canada, the Dutch East Indies, New Zealand and the Pacific Islands, and that the gathering will be even more important than its predecessor of July, 1925, which marked the formation of the Institute.

"Mental Disarmament" is the purpose of the meeting, according to Dr. Ray Lyman Wilbur, president of Leland Stanford University, California, and chairman of the Institute.

"Half the population of the earth lives in countries bordering the Pacific," President Wilbur said in connection with the announcement of the coming conference, "and the need for better racial understanding and for a practical solution of immigration, food and economic problems affecting this portion of the world is imperative.—Ivy Lee and Associates, *Clip Sheet*.

Hippocrates Oath—A more wonderful and better written oath has not been produced than that of Hippocrates. To have stood the ravages of time it had to be good. It should be pleasing to us that one of the first developments of our profession was the establishment of a principle of ethics. It should be a source of gratification that our profession along ethical lines has not evolved; ethics have been handed down through the years almost unchanged. Do we not appreciate the fact that our forefathers in medicine realized that there were obligations to themselves, their fellow practitioners, their patients, and to the public.—Editorial, *Fulton County Med. Bull.*



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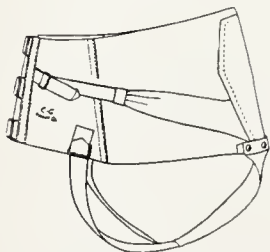
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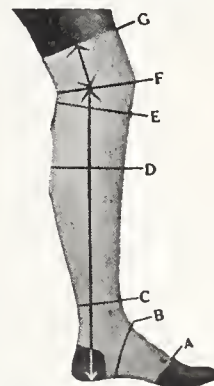


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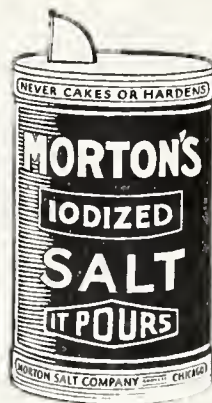
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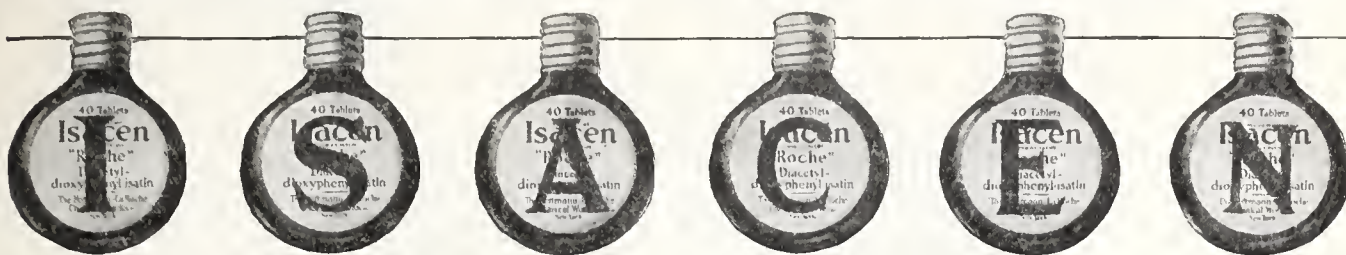
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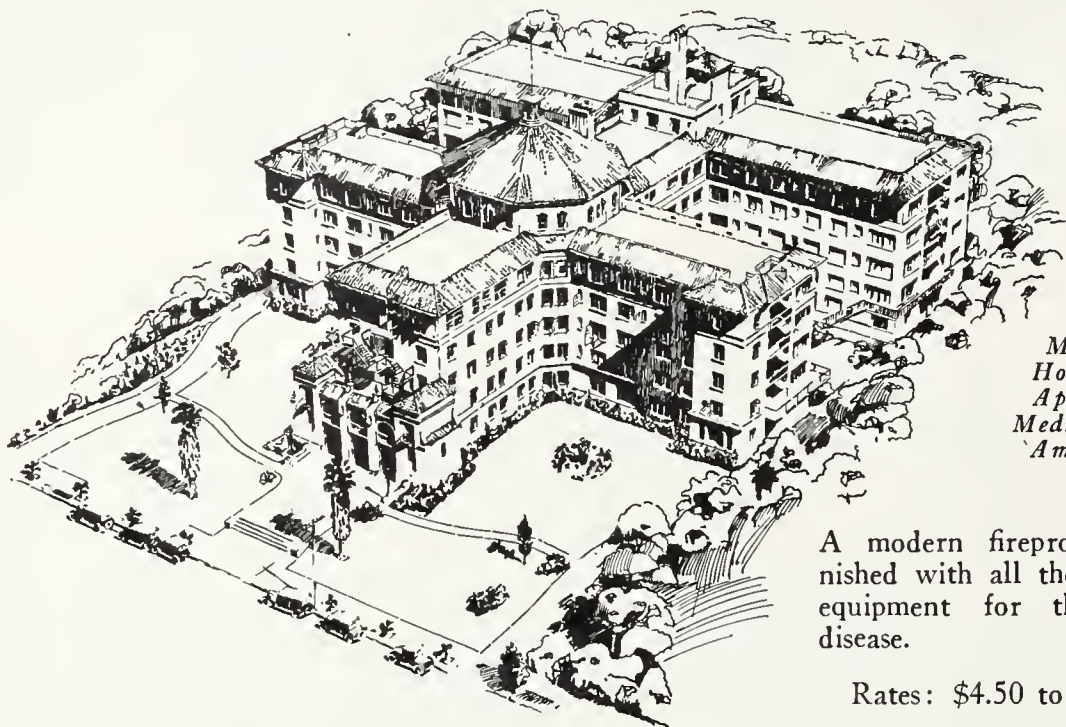
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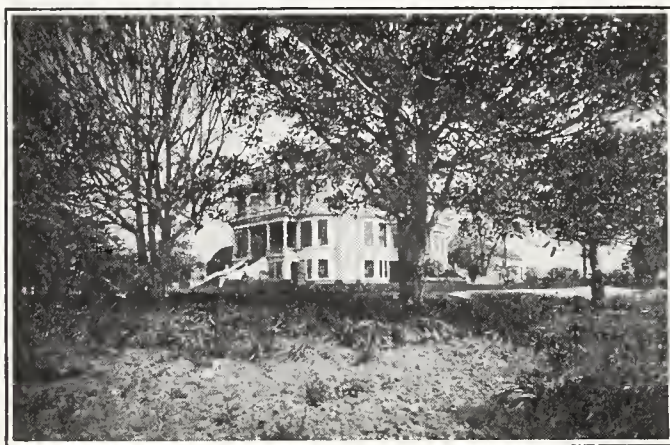
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The Origin of Bethel or Bedlam—Bethel or Bedlam is a corruption or diminutive of St. Mary of Bethlehem Hospital used as a madhouse in mediæval and ancient times. In all old cities there were Bethels and leper houses, and in practically all of them there were hospitals for the sick and injured founded as religious institutions and conducted by certain members of religious bodies who were especially set aside for this service. Many of these institutions were founded as thanksgiving offerings to God or as penance for sins or from pure charity and love of fellow creatures.

Bethel or Bedlam in Norwich, which is quite one of the oldest cities in England, was founded, according to Bloomfield, that trustworthy historian of ancient Norwich, by Mary, third daughter of John Man, Esq. In 1713 she built Bethel in the parish of St. Peter, Mancroft, Norwich, where also, by the way, Sir Thomas Brown lived and died and in the noble church of which he was buried. In the words of the founder, Bethel was built "for the convenient reception and habitation of lunatics and not for natural-born fools or idiots." Miss Man married, and as Mrs. Chapman was left by her hus-

band a good deal of property. She settled all her estates in Norfolk and Norwich on trustees, giving to them, and the majority of them, the sole power and management of the house; ordering them to choose and place or displace the master, who is to dwell therein and take care of the lunatics, and to appoint physicians, apothecaries, etc., as the majority may think fit; those only who are destitute of friends or relations to be kept here gratis, as the following clause of her will shows: "Whereas it has pleased Almighty God to visit and afflict some of my dearest and kindred with lunacy, but hath hitherto blessed me with the use of my reason and understanding; as a monument of my thankfulness unto God for this invaluable mercy and out of a deep sense of his divine goodness and undeserved mercy to me vouchsafed and in compassion to the deplorable state of such persons as are deprived of their reason and understanding and are destitute of relations or friends to take care of them I do hereby settle Bethel for that purpose."

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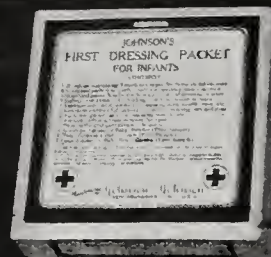
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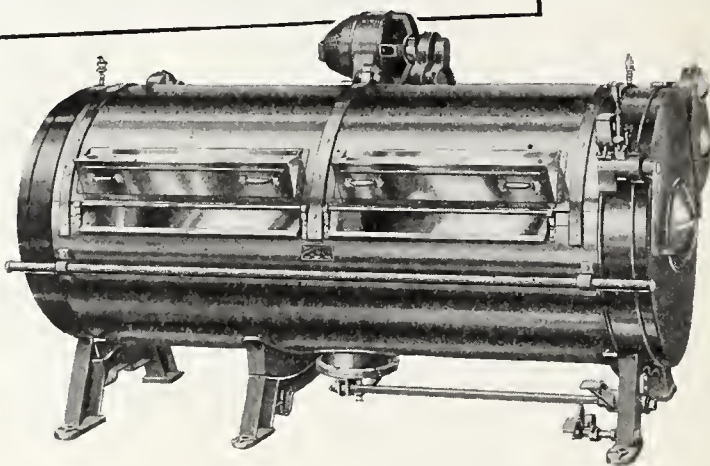
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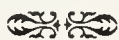
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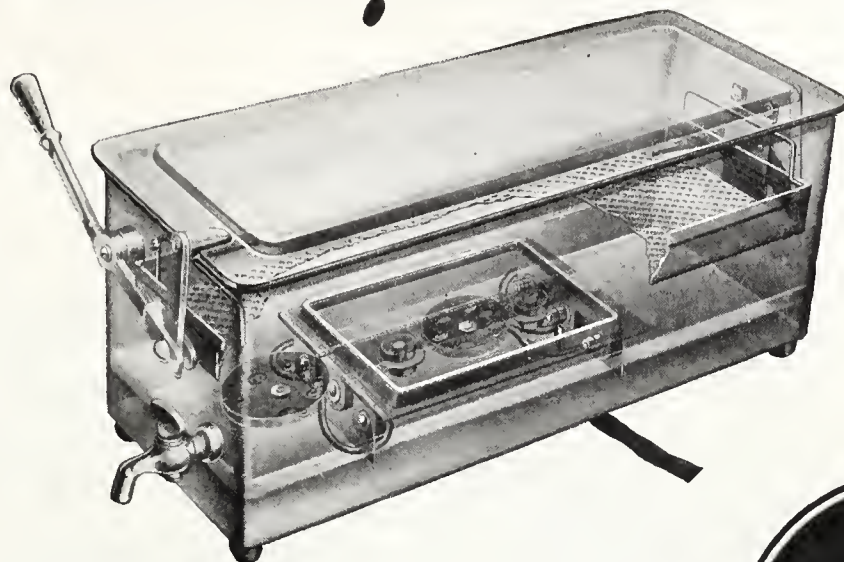
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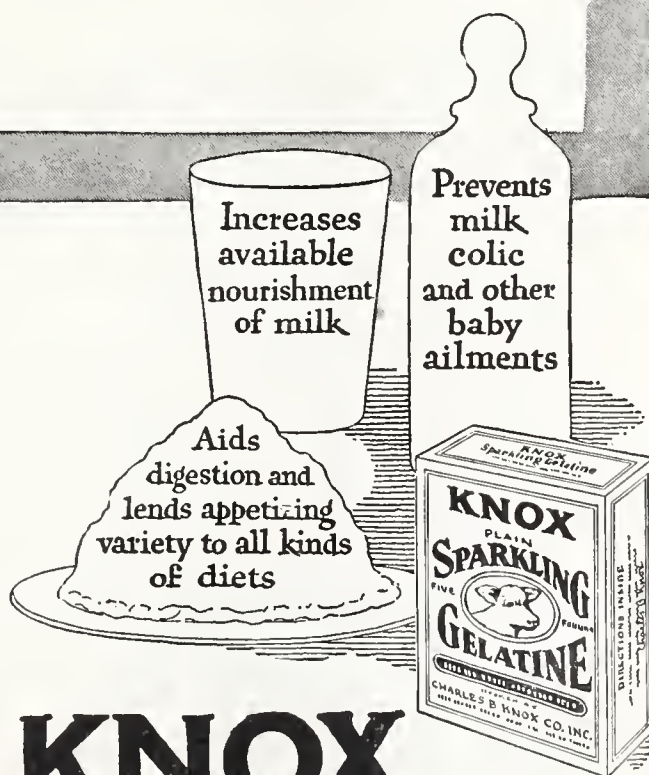
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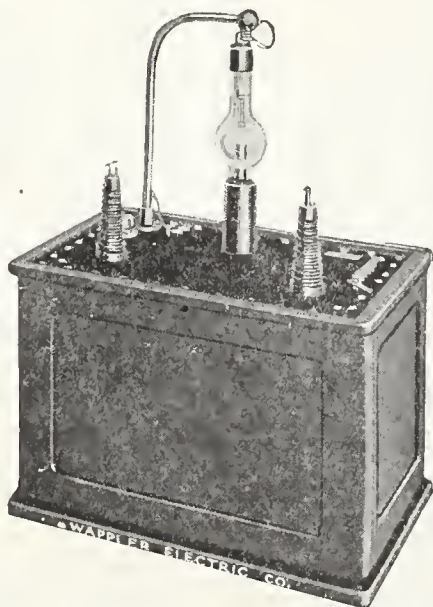
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Study of Longevity of College Athletes—By the end of the present summer statistics on the longevity of college athletes will be completed, if the 2000 records now out are turned in by the close of the present school year. This announcement is made by the May Statistical Bulletin of the Metropolitan Life Insurance Company.

Dr. Robert T. Legge, physician of the University of California Infirmary, is compiling records of the California athletic heroes. Similar studies are being made in forty of the leading colleges of the United States by members of the President's Committee of Fifty on College Hygiene and its cooperating organizations.

The committee now has 9000 case records. The study is limited to "letter men" who are members of the classes of 1905 and prior years, all of whom have entered middle life. The sports to be covered are football, rowing, track, baseball, basketball, lacrosse, cross-country running, and hockey.

"This will be the first authoritative answer to the question as to the effects of participation in such sports in the after life of the individual," Doctor Legge says. "It will be representative of the mortality experience of the college athletes of the country."—*U. C. Clip Sheet.*

Toxin-antitoxin Injection—A telegram has been received from Dr. C. W. Grove, health officer of the city of Geneva, that 2229 children, 759 of whom were of pre-school age, were given the first injection of toxin-antitoxin at a clinic held on May 11, twelve physicians doing the work. This is the largest clinic that has come to our attention. Doctor Grove states that 1000 children had been immunized previously. If equally good results can be obtained at succeeding clinics, Geneva apparently will hold the record for percentage of immunized children under 15 years of age in cities of over 10,000 population. The city's estimated population in this age group is 4278.

The motto of the ancients was: *Mens sana in corpore sano*—The healthy mind in the healthy body.—*Chicago's Health.*

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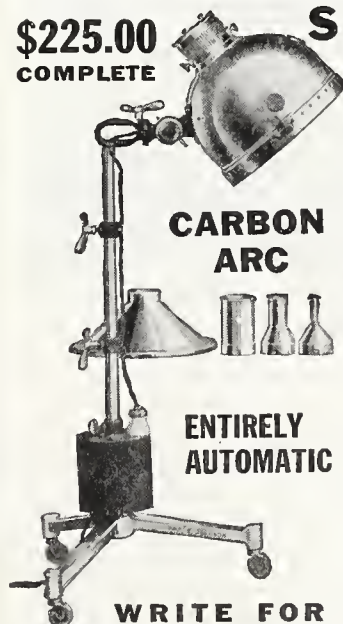
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Eye Hazards of Industrial Occupations—A nationwide study of the eye hazards of industrial occupations conducted by the National Committee for the Prevention of Blindness shows that the American Car and Foundry Company, the Pennsylvania Railroad, the Ford Motor Company, the General Motors Company, the Pullman Company, the United States Steel Corporation, and other industrial concerns with reputations for keen business judgment have spent together hundreds of thousands of dollars for the protection of the eyes of their employees. These companies would not have spent such amounts for eye protection and would not continue to spend additional large sums year after year if they were not convinced by actual experience in their own plants that it is cheaper to prevent eye accidents than to pay for them.

It is the belief of the National Committee for the Prevention of Blindness that the greatest possibilities for the elimination of the eye hazards of industrial occupations lie not so much in mechanical devices and appliances as in education—education of the state as to its moral and economic obligations; education of the employer as to the desirability, from his own point of view, of supplying adequate protection for the eyes of his employees; and education of the employee, particularly the old-fashioned and so-called hard-boiled employee, as to the necessity of using that protection when it is provided.—National Committee for the Prevention of Blindness.

A Prayer Found in Chester Cathedral—"Give me a good digestion, Lord, and also something to digest. Give me a healthy body, Lord, with sense to keep it at its best.

"Give me a healthy mind, good Lord, to keep the good and pure in sight, which seeing sin is not appalled, but finds a way to set it right.

"Give me a mind that is not bored, that does not whimper, whine or sigh; don't let me worry overmuch about the fussy thing called I.

"Give me a sense of humor, Lord; give me the grace to see a joke, to get some happiness from life, and pass it on to other folk."—*The Western Dietitian*.

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ROBERT A. PEERS, M. D., *Medical Director*
Colfax, California

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PUBLIC HEALTH AND THE PUBLIC HEALTH SERVICE*

By HUGH S. CUMMING, M. D.

Washington, D. C.

*Surgeon-General of the United States Public
Health Service*

MR. PRESIDENT and members of the Medical Society of the State of California:

I hope you will permit me to express, not in any conventional manner but with real sincerity, the very great pleasure I feel in the privilege of addressing this representative body of the medical profession of the state of California. The Pacific Coast may be a long distance from the national seat of government, but this does not lessen one whit our interest in the activities of the great West, whether they be medical or otherwise.

My pleasure on this occasion is emphasized in that I am to talk of public health and more particularly of the Public Health Service, with which I have been associated for so many years, and which for the past few years I have had the honor of directing. For other reasons, this topic and this occasion are all the more congenial in that it affords me the opportunity of talking largely to clinicians rather than to an audience of sanitarians.

The modern public health movement is young, younger than most of us realize. It requires a backward glance to make us appreciate how far this movement has gone in the space of but a few years. I have time for only a word or two on the history and development of this great movement.

Stimulated by the development of the scientific spirit and the growth of Christian humanitarianism, Europe's heritage of the Middle Ages, the modern public health movement may probably be said to have begun with the creation of the General Board of Health of 1848 in England, because for the first time in human history this legislation recognized the care of public health as an important governmental function.

In our own country this movement is but little more than a half century old and originated in the state of Massachusetts where the first State Board of Health was established in 1869 as the result of the important report of the Massachusetts Sanitary Commission of 1850.

About the same time in the city of New York, as a part of the fight against the notorious Tweed ring, a sanitary survey of the city was made under the direction of Stephen Smith which disclosed such startling sanitary conditions as to lead in 1866 to the passage of the Metropolitan Health Law, the far-reaching provisions of which have had much in-

fluence in subsequent health legislation throughout the United States.

In reading the literature of this period, barely more than a half century ago, it is difficult for us to realize the sanitary conditions which prevailed. Their description reads more like a page out of the Dark Ages, so tremendous has been the change wrought in even a few years. To you who would get a picture of that time, I can recommend Stephen Smith's book, "The City That Was."

For the present occasion, however, we are less interested in historical details than in the ideas and theories—the fundamental conceptions of disease—which dominated this movement in the various phases of its evolution. The character of the movement has changed with the development of medical thought and discovery, and will, of course, continue to change so long as it is alive, for, as Cabell puts it, "to stay still can be esteemed a virtue only in the dead."

The dominant idea in medicine when this movement was born and the working program of the sanitarian was based on the filth theory of the generation of epidemic disease. The doctrine of miasm and similar ideas held full sway over the medical mind of this period. Under such ideas the prevention of the spread of disease lay in the "general cleaning up" of man's environment and all sanitary effort was devoted to this end. These ideas were tenacious and they were given up slowly. It has been noted even in our own time that a serious attempt was made to eradicate yellow fever from Havana by the general sanitation of the city without any appreciation of its infectious nature and its propagation by living agents of infection.

It is to be noted that this working hypothesis of disease, while leading sanitarians into many blunders and showing unsatisfactory results in the prevention of the spread of infectious disease, nevertheless was instrumental in the establishment of many sound sanitary principles, such as, for example, better water supplies, the proper disposal of sewage, prevention of stream pollution, removal of nuisances, cleanliness of streets, ventilation, and other similar matters.

While there existed no real appreciation of infection and infectious disease, yet medical men of this time, and even previously, were not entirely without some idea of contagion. Quarantine and isolation were practiced in the Middle Ages, and the Hebrews, as shown clearly in the Scriptures, applied these methods intelligently and successfully. Quarantine was widely used during the Middle Ages against such scourges as smallpox, leprosy, plague and typhus, and was not without effect. Indeed in the case of leprosy these methods, while oftentimes inhumane and even barbaric in their application,

* Read before the California Medical Association in General Session, Los Angeles, April 28, 1927.

were successful to the point of eradicating this disease from most of western Europe. Maritime quarantine, too, during the fourteenth century was introduced by Venice against plague.

With the advent of Pasteur's notable discoveries and the firm establishment of the doctrine of living microscopic agents as the cause of disease, together with the foundation of the modern science of bacteriology, the public health movement passed into another stage. Previous to this time sanitary science was groping blindly. It now found itself on surer ground and could attack communicable disease in a way undreamed of by past generations. To detail the developments which followed would almost be to tell the story of modern medicine. Thus having passed through the periods of the alleviation and suppression of disease through sanitation of man's environment, the public health movement, with a fuller realization of the sources and modes of infection, had now entered the period of the prevention of disease, when its chief effort was devoted to the control of the communicable diseases.

With the next stage in the development of this movement, we come to our own day, and to the so-called "New Public Health," when the objective of the sanitarian passes from the negative formula of the prevention of disease to the much more positive formula of the promotion of health with all that is thus implied; and with especial emphasis on popular sanitary education rather than the enforcement of sanitary law. This does not mean that there has been any abandonment of previously well-established principles and practices. It signifies rather a progressive step based on past developments with a more comprehensive grasp of the fundamental aspects of the problem presented.

This policy obviously greatly broadens the scope of the movements, and incidentally introduces many corollaries which are themselves productive of embarrassments of one kind or another. The breadth of this policy may perhaps be better appreciated by quoting a definition which has been formulated to express modern public health, which reads as follows: "The science and the art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will insure to every individual in the community a standard of living adequate for the maintenance of health." (Winslow.)

In this development of public health the Public Health Service has had its share and has itself had to undergo its own process of evolution.

Established more than a century ago by act of Congress passed in 1798, as the Marine Hospital Service, for the care primarily of seamen of the American merchant marine, it has, through a gradual process, been developed by different acts of Congress to its present position as the national public health agency. Located originally in the Treasury Department by reason of its relationships with the

Customs Service and other maritime agencies, it has remained in this department, where it has thrived. Its first public health development, about 1878, most naturally concerned the maritime quarantine of the country, which function gradually passed from the control of the states to the control of the national government.

In the 90's it was charged with the responsibility of interstate quarantine matters and the development of cooperative relationships with state and local health agencies. The Hygienic Laboratory was established in 1902. By 1912 the Service had assumed under law the full responsibilities and powers of the federal public health agency and its name was accordingly changed to the Public Health Service. It still continues also to operate its system of marine hospitals.

As a Bureau under the Treasury Department, it operates under the administrative supervision of an assistant secretary of that department, with a surgeon-general as its immediate administrative head. This Bureau is divided into seven administrative divisions by which its various field stations are organized and managed. It is a Civil Service operating under a military organization, and the nucleus of its personnel is a group of commissioned officers. It employs other classes of professional personnel under Civil Service law and regulation. It is a mobile organization and its personnel can be moved from place to place to meet various demands and emergencies. Its professional personnel includes not only medical men, but dentists, sanitary engineers, research workers and various highly specialized other personnel, in addition to female nurses, aides, and dietitians.

The total personnel of the Service numbers approximately 8000, but in this total are included a large class of persons who are employed on purely a nominal salary for the purpose of rendering assistance in collecting statistical data. In reality its personnel numbers only about one-half of this total.

The total appropriations made by Congress for the support of this Service approximate about \$10,500,000 annually.

The broad functions of the Service as laid down by law may be summarized as follows:

Operation of marine hospitals, protection of the country from without through the operation of a maritime quarantine system, protection of the country within through interstate quarantine laws and regulations, cooperation with state and territorial health officers through annual conferences and otherwise, investigation of the diseases of man, supervision and control of biologic products and public health education and the dissemination of sanitary information.

These functions are discharged through the administrative divisions of this Bureau and cover all phases of public health besides the operation of about twenty-five marine hospitals.

The marine hospitals are very active and their work increases each year. During the past fiscal year these hospitals furnished about 1,300,000 inpatient days of relief, gave 600,000 out-patient

treatments, 110,000 dental treatments and made 100,000 physical examinations. The patients treated in these hospitals are primarily seamen of the American merchant marine, but in addition a great deal of work is done for official patients of one kind or another.

In the protection of the United States against the importation of disease from without, this Service operates the maritime and border quarantine system of the United States and its dependencies. During the last fiscal year it inspected about 27,000 vessels and about 3,250,000 persons in the performance of this duty.

As a part of this function, the Service also conducts the medical examination of immigrants and last year inspected about 1,500,000 such immigrants, including seamen. It is interesting to note that in the last year or so the Service has developed an organization for the medical examination of aliens in Europe previous to their embarkation for this country. This departure, which from one cause or another had been postponed for some years, is now well established and has proved very successful. It is a distinct advance over old methods and will, doubtless, continue to grow.

In the management of its domestic quarantine through the interstate quarantine laws and regulations, the Service has instituted measures for the control of water supplies on common carriers, assisted in the sanitation of the National Parks, been active in stimulating the development of State Departments of Health, instituted a campaign for the eradication of trachoma, developed rural sanitation, assisted in the suppression of epidemics and greatly broadened its cooperative relationships with state and territorial health officers.

Its program in scientific research is broad and concerns not only strictly scientific investigations in the Hygienic Laboratory in Washington, but also investigations in the fields of clinical medicine, statistics, public health administration, and various other matters, cooperating with many other agencies both official and otherwise. Some of these activities have been of great interest, particularly its researches with regard to tularemia and Rocky Mountain spotted fever. It has also entered the field of industrial hygiene, mental hygiene, stream pollution, health administration, and the sanitary control of milk.

The Hygienic Laboratory, which is a large institution, has obtained a position of distinct importance in sanitary science. It is organized into Divisions of Pathology and Bacteriology, Zoology, Chemistry and Pharmacology, and carries on a variety of activities.

Here, also, is conducted the very important function of the supervision of all biologic products which are sold in interstate traffic. When the clinician buys diphtheria antitoxin on the market, the Public Health Service guarantees that this package contains a sterile and a potent article. All manufacturers of biologic products must be licensed by the Public Health Service, their establishments are regularly inspected and their products are regularly tested. They must conform to standards laid down by the

Public Health Service. This involves a very large amount of highly important work.

Through the publication of its weekly journal, *Public Health Reports*, the Service distributes information concerning the health of the world, and assumes the responsibility for collecting a large amount of statistical data which has proven of great value to sanitarians. In addition to this, it issues a large volume of literature on a variety of scientific topics.

Through the Venereal Disease Division of the Bureau, this highly important subject is receiving as much attention from the federal government as funds will permit. This organization has been instrumental in developing clinics, spreading information, educating the public, and cooperating with the various states.

Of course there is a division in this Bureau for supervising accounts, making accountability of public property and managing the personnel. Medical officers are secured through rather severe physical and mental examinations and are then commissioned in the regular service.

It is tiresome, perhaps, to mention even these few details of the large volume of work performed by this Service. It is not my desire so much to give details as to try to give some comprehensive idea of the position occupied by the national health service and the responsibilities with which it is charged. I wish I had more time to point out clearly how, by reason of its official position and its cooperative relationships, this Service has been able to render assistance in such matters, for example, as the sanitary regulation of the shellfish industry, the investigation and satisfactory settlement of the question of the hazards involved in the use of tetraethyl-lead-gasoline in the operation of motor cars, and the introduction of a standard milk ordinance which would insure uniform sanitary control and standards throughout the United States. I mention these particular matters because they represent and because they illustrate so convincingly how, by reason of its position, the Public Health Service is able to bring together not only sanitary and scientific agencies but commercial as well.

It is to be emphasized that the Public Health Service occupies a very definite field of its own. It does not duplicate the work of, or interfere with the activities of, the state and other local health organizations, whether they be official or otherwise. It occupies, however, a very strategic position between these state and local health agencies on the one side and international health agencies on the other. Indeed it is so placed that it may lend great assistance to other agencies and do much to stimulate and coordinate health activities of various kinds without in any way interfering with the prerogatives of others, or with their peculiar fields of endeavor.

It makes me happy to think that as we have grown in knowledge and experience, perhaps we have grown in grace, because I think truly that never before in the history of public health has there existed such happy cooperative relationships as now exist between the Public Health Service and the various state and local health organizations of this

country. It is only through such cooperative relationships that we may expect to secure real progress in this vital movement. I say it reverently, but I think we might add to the Beatitudes, "Blessed is the man who cooperates, for he shall find favor with his fellow-men and achieve much."

I must leave to others to say how well this Service has achieved its task and how fully it has met its responsibilities, unless I should assume the attitude of George Bernard Shaw, who on one occasion in speaking of his own work said, "Were I to tell the truth about myself, I must needs seem vain-glorious; while to tell less than the truth, I should do myself an injustice and deceive my readers."

I do not think I could do better under these circumstances than to quote a recent statement made by Dr. William H. Welch before a committee of Congress, when he said: "The growth of the Public Health Service today has placed it in the front rank among corresponding agencies of government in other countries. . . . This Service has been one of the great forces for the improvement of local health administration. It has been actuated by the very sound argument that the primary responsibility is with the local community and it has strengthened this feeling and greatly stimulated the development of local official health organizations." I may add that Professor Rosenau of Harvard, for many years an officer in this Service, has happily said: "The United States Public Health Service is an admirable example of governmental usefulness."

I should like to comment incidentally on the very pervasive character of the modern public health movement with special reference to criticisms which are made that the public health functions of the national government are scattered in a score or more of its departments. I do not think it is fully appreciated that the scope of the modern public health movement is so broad that a very large number of governmental activities present certain limited public health aspects. This does not, however, by any means imply that such governmental activities are in any sense public health activities, and it would be very unsound from any point of view to attempt to place all such activities under one administrative head.

It is true, however, that in the development of national public health all public health activities of the national government are not coordinated as they should be. The Public Health Service has now reached the point where it can fairly be considered as *the* agency of the national government for the administration of all public health matters, and during the last session of Congress there was introduced a bill, known as the Parker Bill, which recognized this fact. This bill did not originate with the Public Health Service, and for the first time in the history of sanitary legislation all who are interested in the progress of public health are agreed on a piece of sanitary legislation. This bill provides for some reorganization of the public health activities of the national government and recognizes the Public Health Service as the nucleus around which such reorganization should take place. It is an impor-

tant measure, and it is my earnest hope that it may become law within the more or less near future.

While the public health movement alone cannot claim entire credit for the results which have followed, because there are many factors in such a situation, yet with justice it may claim a large share of credit for the extraordinary results which have been achieved in the prevention of disease, the decrease in mortality and the prolongation of life, and the achievements have been striking indeed. For example, in half a century about fifteen years have been added to the span of human life in the United States, the infant mortality rate has greatly declined and there has been a striking reduction in the mortality of most of the infectious diseases. But these results have been by no means uniform, and sanitarians are now faced with the problem of shifting their point of attack. The degenerative diseases of advancing life, cancer, cardiac and vascular disorders, as well as certain respiratory affections, have shown no such reduction. On the contrary, the mortality rate of many of these diseases is distinctly increasing. Sanitarians have not been unmindful of these facts and have given much thought to the solution of this problem. To meet this issue will require the development of a program somewhat different from that previously employed, and this program leads back to the clinician. The emphasis in such a program must of necessity be placed upon the individual, and it is the clinician who will hold the key position.

With the specialization which has necessarily taken place in modern medicine, it was assumed, somewhat tacitly perhaps, that the sanitarian occupied his particular field and the clinician his, and that there existed between these two departments of medicine no special relationship. This separation of curative and preventive medicine was an error. We are coming more and more to recognize the unity of medicine and more and more to see that if we are to achieve the desired results, all departments of medicine must cooperate to the one end, which is the prevention of disease and the promotion of health. The separation which has existed between curative and preventive medicine is sound neither in theory nor in practice.

In reading the literature of the modern public health movement, one notes on every hand the growing concern of both sanitarians and clinicians over the present organization of medicine. Situations have arisen which irritate the clinician on one side, and disturb the sanitarian on the other. It is obvious that there exists a situation of great delicacy for which no easy answer can be found. There are, of course, two sides to the question, which perhaps grows more acute with the passage of time. It is the opinion of thoughtful men that it will require the best effort and the best judgment, with the heartiest cooperation, to solve the problems which will face the medical profession in this regard during the next twenty years. I am well aware that the clinician has his own troubles, and yet I feel satisfied that the modern public health movement is sound so far as its objectives are concerned, and I believe that in the future program of this movement

more and more emphasis will of necessity be laid upon personal hygiene. The assistance of the clinician will be necessary to success.

With due regard to all the difficulties of clinical medicine, there is an unanimity on the part of thoughtful sanitarians in their expressions of opinion that the general medical profession has not participated as actively in public health activities as it should have done. Undoubtedly there has been encroachment upon the field of the clinician by the sanitarian, and on the other hand, there has been a lack of sympathy on the part of the clinician with the efforts of the sanitarian. The program of the new public health envisages these two great forces of medicine as working together for the prevention of disease.

If I have taken this opportunity to lay stress on these questions, it is from no selfish reason, but is due only to a very natural anxiety over the possibility of discord within the medical profession. Only with a united front can we hope successfully to "breast the blows of circumstance." Nor is this a matter solely for our own concern. We cannot afford to forget the interests of the public whose welfare is seriously involved. Their attitude will not by any means be uncritical; and since our actions will ultimately be weighed in the balance of public opinion, let us determine that we shall not be found wanting.

THE EDUCATION OF PHYSICIANS*

By WILLIAM WALLACE CAMPBELL
Berkeley

President University of California

IF I may venture to paraphrase a more or less familiar definition of life, I should say that life is just one problem after another. This definition has its evident limitations; but the living of a man's life successfully, in this limited sense, means the solving of his problems, one after another, as they arise.

I incline to think that the physician and the surgeon are especially qualified to pass upon this definition. Are not their professional lives devoted to the solving of a continuous succession of problems; problems remarkable for their great variety; problems which in many cases have to do with life and death?

Colleges and universities have as their principal duty the preparation of young men and young women for successful living; for the partial training of their students, not only that they make the most of their own individual lives during the sixty years, more or less, which lie ahead of them, but that each may contribute something to the successful life of his community, state, and nation. This does not signify that colleges and universities must limit their curricula to subjects which the world calls practical, or even make their curricula chiefly or largely out of practical subjects. The curricula followed by many college men who became famous

as successful leaders of thought and action in the world would nowadays be considered completely and thoroughly ideal and impractical. No man can get the most out of his own life, or contribute worthily to the lives of men and women about him, unless he possess those fine attributes which make life worth living; unless he have a fair degree of culture; unless he develop a spirit of reverence for all good things. These attributes are especially necessary to the success of the physician, who, from the character of the service he is called upon to render, must be the confidant and adviser of individuals and families in matters of great significance.

We run no risk whatsoever in saying that the problems of the future are going to be quite different from those of our past. I do not doubt that there will confront the physician of the future a great variety of new problems, many of them differing widely from those which he will have read about in the books. The educated man must be able to attack his own class of problems, differing from any he ever encountered before, and make progress in their solution. What is the procedure for the acquiring of an education which will permit him to do this? Such an education will not come as a gift. It will come, in essentially all of its important elements, through the efforts of the student himself. College and university can help him, professors can assist him, but they in the last analysis can provide little more than the golden opportunity for the student to educate himself. Education invariably comes from within; it is not conferred from without. Educational institutions and efforts are successful about in proportion as the professors limit themselves to the supplying of expert guidance to the students, and as the students do the work themselves.

The qualities of the curriculum of college or university have much less to do with the qualities of the students than is generally supposed. The most perfect curriculum in the world will fail of its purpose if the professors do too much of the talking in the lecture room, too much of the manipulating in the laboratory, and the students merely listen and "take it easy." A curriculum of only mediocre merit will serve as a successful skeleton upon which to construct a fine educational body if the students work earnestly and thoughtfully, under the wise guidance of their preceptors. The professorial pumping of cold facts and abstract principles into so-called students has never yet made an educated man, nor an educated woman, and it never will. If it is just facts that people want, they should not go to college. Many books, crowded full of facts, have been planned and published to meet their needs. But I should not want to be understood as condemning the lecture system *in toto*. I merely condemn the matter-of-fact lecturer and the matter-of-fact students who depend upon him; to that extent the lecture system is a failure. Upon the basis of observation I venture the guess that 90 per cent of the people of our great country think of a college as an institution consisting of buildings and books, professors and students—and, of course, a football stadium—people who think the full duty of the

* Read before the California Medical Association in General Session, Los Angeles, April 27, 1927.

college is attained when in some mysterious manner the professors get the facts out of the books into the heads of their students. If that were all there is to college and college life, the colleges could well go out of existence.

But returning to our subject: what is the philosophy of an educational program which will prepare able young men and women for the successful practice of the medical profession? What should be their work in college, in preparation for the medical school, and how much time should they devote to it? As I have already said, physicians must deal pleasingly and successfully with people, and there is no denying the fact that for the physician a close approach to a liberal education is essential. This means, in general, three or four years of college education. It means from two to three years of college experience on fundamental subjects, with little or no specialization; that is, before specialization begins. Some medical colleges have definite requirements for admission, e. g., the bachelor's degree; other medical schools require three years of college. Now there are in fact many sophomores who, by virtue of early home training, by virtue of native ability, by virtue of their observational and reasoning powers, are better fitted to take up the study of medical science than are many seniors who actually enter our medical schools. It is unfortunate that entrance requirements, in behalf of administrative simplicity, penalize many meritorious applicants in this way. It is one of the bills we pay for basing our educational systems upon the *average* ability of the students.

There has in recent years been introduced into many colleges the practice of making mental tests upon applicants for admission to the freshman or later years, and there also have arisen doubts as to the sufficiency and efficiency of these tests; at least, there have been many disappointments. In view of the special and high qualities which candidates for the degree of Doctor of Medicine should possess, in view of the extremely high cost of medical education, in view of the limited numbers who can be accommodated in the medical schools, should students be admitted to the study of medicine exclusively upon their scholarship marks in college, or yet upon examination records and intelligence tests combined; or should individual candidates be interviewed and observed by a competent board for still other and more general reasons? We should not overlook the fact that the cost of carrying students through some of the medical schools in the United States, and graduating them as Doctors of Medicine, is as high as \$10,000 each, not counting the sacrifices of time and money and earning power which the students themselves will have made. Certainly the unpromising student should not keep out the promising.

Recalling, again, that physicians are concerned with the solving of difficult problems, great stress in medical education should undoubtedly be placed upon the fundamental subjects in the curriculum; or, at least, upon the fundamentals before the specials. If the fundamentals are passed over lightly, and the specialties pursued unduly early, the prep-

aration is really for a vocation, not for a profession. The same false doctrine as to the education of a civil engineer would enable the engineering graduate to build a bridge just like one that has been built earlier by somebody else, but not to design an entirely new bridge to meet new and quite different conditions. The mechanical engineer who has been trained in specialties, and not in the fundamentals of his subject, may repair a locomotive, or build a locomotive that will be just like an existing one, but he will not be expected to succeed in designing an entirely new type of locomotive to meet the needs of new developments in railway transportation. The designer, to be successful, must know the fundamentals of mechanical engineering; and so it is in medicine and in every subject.

Two or three decades ago, when weak medical schools gave up their struggle for existence, and a smaller number of strong schools emerged and further developed themselves, elaborate medical-school curricula were formulated. The faculties and students in those medical schools seemed to be happy in their curricula. However, the many and splendid discoveries made in medical science, the development of new methods, the growing preference of young medical graduates for city residence and practice—for city offices in which they could practice specialties, and have their patients come to them—these conditions have led to impossible demands upon the existing curricular systems; and the curricular contentment of old has turned into dissatisfaction. In all the forward-looking colleges and universities of America there has for two or three years been a serious questioning of the sufficiency of their curricula, and a growing lack of confidence in their methods. In no department of education is this more evident than in the medical schools. The lecture system has gone too far and into too much detail: good students do not need so many lectures. There are too many units of requirement in the curricula: good work done on a small number of subjects is vastly better, educationally, than poor work on a great number. The conscientious students do not have enough time to reflect upon their work, not enough time to think of what it is all about; and the nonserious students have too much of their work done for them by the professors. It is in response to the feeling of dissatisfaction with methods and results in the present-day medical schools that positive and definite efforts are now being made in behalf of curriculum simplification.

In my opinion, the first essential in the education of a student for success in the medical profession is a good knowledge of the language with which he is called upon to express himself. Then, aside from such cultural studies as literature, history, and foreign language, the need for thorough knowledge of some physics, much chemistry, and the fundamentals of zoology, is imperative. Those subjects should be mastered by the *good* students, insofar as prospective medical students need them, not later than the end of the junior year in college. The pre-clinical subjects, such as bacteriology, anatomy, physiology, biochemistry, are studies, I think we may all agree, which should be taught to intending physicians with the utmost thoroughness, and no stu-

dent should be permitted to go on to his clinical years until he has mastered them; they are absolutely fundamental to his success as a scientific physician. They should be taught as sciences, not as collections of facts. I incline strongly to the belief that they can be taught a great deal better in the environment of university atmosphere than in the atmosphere of a medical school which occupies an isolated position away from a university, no matter how excellent the medical school may be. The teaching of these fundamentals alongside the clinical activities would doubtless be of some benefit to the clinics, but will the near presence of the clinics help vitally in the study of these fundamental subjects? It is important, in my opinion, that students of these fundamentals should be immersed in the atmosphere of scholarship, rather than in that of the art and the practice of medicine. The activities of the clinical years are different in their nature, but it would be well if they too could enjoy the advantages of the general university atmosphere. The geographical attachment of the preclinical and the clinical services to the University has the advantage that the students may learn something of the nature and methods and purpose of research in medical science; of efforts, for example, to discover, and understand better, the functions of all the many parts of the human body, even though the medical students may not, in the great majority of cases, find time or have the special ability to engage usefully in research. However, those students who have, or may develop the worthy ambition to engage in this superlatively important activity, may remain in this work, or return to it after acquiring their degrees.

But here I insert a precaution: knowing something about the tendency of many professors to veer in the direction of research, the learned and wise dean of the medical school and his advisory board will zealously guard their right and duty of specifying that the contents and scope of the courses in the fundamental, preclinical subjects shall be adapted to the needs of the medical school.

I have but second-hand and superficial knowledge of what the clinical years should include, or attempt, but I do believe that they have been attempting to do too much formal teaching and, in general, too little learning by the process of individual doing.

Personal responsibility is the greatest educator there is. A lawyer who practices in court gets wonderful discipline out of the fact that on the other side of the table is always an opposing attorney, who is "lying in wait" for any slip he may make. The attorney who advises a great corporation as to correct procedure, or, for example, as to the legality of a proposed bond issue, must make no mistake whatever. We let students through college and medical school and university if their examination papers are 70 per cent or 75 per cent correct. The attorney who advises on questions of legality, the engineer who plans the piers for the substructure and the trusses for the superstructure of an important bridge must attain full 100 per cent of correctness, or as an alternative pay a heavy penalty. A physician in practice learns more responsibility than he did in medical school, for in many cases

death is at his elbow, ready to take advantage of any mistake he may make.

There remain many questions concerning medical education, and perhaps none more interesting than this: how many years should the young man who would be a general practitioner devote to his college and medical education? No one can safely be specific on this subject, except for the average student. The tendency of the last quarter century has been to require more and more years of college preparation, and more and more years in medical school. I wonder if there is any basis for the suspicion that we are requiring the devotion of too much time. I venture an opinion only upon the basis of analogy, and it relates only to the best students, the real students. It is certainly true that the bachelor of arts who devotes more than three years of postgraduate study to securing his doctor of philosophy degree, with ambition ultimately to become a university professor, is in general making a mistake; he is likely to go stale; he is running a serious risk of undermining his powers of initiative. He should delay no longer in assuming responsibility. He should stop taking on formal knowledge from others and begin to give out something of himself to others. By being under the necessity of making vital decisions, he will educate himself as nobody else can ever hope to educate him. The physician as the devotee of a learned profession, the professor who serves serious students of serious subjects, must go on educating themselves by the very process of serving others successfully.

Here is a true story of a noted professor of physics, and of a high school teacher who chanced to attend one of the lectures in the professor's most advanced course. After the lecture the high school teacher expressed to the professor her regret that she did not know much about his subject, because, she said, "I have never taken a course on that subject." "Neither have I," said the professor. The young woman suffered from the complex that in order to learn something about a subject she must elect and pursue a course on that subject. The professor, fortunately, was not so afflicted. This story has a lesson for all of us. Those who can give out only what they have received from others are not real scholars; they will leave the world, so far as they are concerned, just as they found it. Those who, in their student days, mastered the fundamentals of their curriculum can of themselves not only obtain a mastery of the new things in their subject as they are announced and published: through thought and work they may even hope to make contributions to the extension of the subject. That is precisely what the professor of physics did. That is why our store of knowledge of electricity, and mathematics, and medical science, and so on through the whole range of human endeavor, is tremendously greater than it was 100 years, or 50 years, or 25 years, or even 10 years ago. That is why a physician or a surgeon, thoroughly rooted and grounded in the fundamentals of his science in college and medical-school days may, as a condition essential to the successful practice of his profession, keep himself thoroughly abreast of the times in his special field of endeavor.

THE ANTIRACHITIC VALUE OF HUMAN MILK*

By HENRY J. GERSTENBERGER, M. D.; J. I. HARTMAN, M. D.

AND

D. N. SMITH, B. S.

Cleveland, Ohio

RICKETS today is accepted to be a metabolic disorder affecting the body as a whole. Its clinical picture, however, is the result of the pathological changes which develop principally in the osseous system, and also in the muscular and nervous systems.

Its prime and basic cause, in our opinion, is the inadequate exposure of the human skin to the actinic rays. Another factor that plays a fundamental rôle in the production of the clinical picture of rickets is growth. Diet also contributes to the development of human rickets, but, in our opinion, only in a secondary manner. We, therefore, consider rickets as far as human infants are concerned to be rather a climatic than a dietetic disorder.

Various workers, however, especially Shipley¹ and his associates have demonstrated that rickets can be produced in rats by dietetic measures, namely, by bringing about a disproportion between the calcium and inorganic phosphate content of the diet. By reducing the inorganic phosphate and at the same time raising the calcium per cent of the food; or vice versa they can produce rickets in the rat or by keeping the two minerals in a proper balance to each other they can prevent its occurrence. Such conditions of abnormal mineral balance, however, do not apply to the diets consumed by the human infants, inasmuch as milk in some form constitutes the principal part of their diets or, for six months at least, the whole of it. Both in human and in cows milk enough calcium and inorganic phosphate are present and in a relationship that is satisfactory from the standpoint of rickets prevention. Consequently, it seems improbable that the diets of human infants play a fundamental and primary rôle in the development of rickets. Nevertheless, while it is known that a large number of infants subsisting on human milk become rachitic, it is generally recognized that such breast-fed infants do not as a rule develop rickets as readily and as severely as do infants fed cow's milk. Is not, therefore, rickets after all fundamentally a dietetic disorder? But, if rickets is primarily a dietetic disorder in the human infant, are we not justified in expecting human milk to prevent the appearance of rickets or to cause its cure providing that the diet of the mother be adequate? Such has been the experience in the Orient of the students of the dietetic disease beri-beri. The answer to the above-stated question was the object of the work which we wish to discuss with you today.

In order to assure ourselves of the adequacy of the diet of the human mothers whose milks were to be tested for their antirachitic value, we gave

to the mothers, in addition to the regular diet consisting of milk, meat, vegetables, cereals, and fruits, one tablespoonful of cod-liver oil daily. The oil was administered by the nurse in charge of the wet-nurses and was in each instance taken from a lot of cod-liver oil which had been found effective in preventing and curing rickets in infants receiving it as a part of the food* serving as their diet. Consequently we know that the diet of the mothers was abnormally rich in its content of the antirachitic factor.

Our first observations on two patients were made during the early summer of 1925 and were inconclusive in that one of the infants showed an improvement of his rickets as judged by the roentgenogram, while the other remained refractory. As an explanation of these contradictory findings we offered to ourselves two possible reasons, namely: first, that the infant who showed signs of healing had received effective antirachitic therapy before admission to the hospital and that the human milk given it by us played no rôle in the improvement produced, and, second, that the other infant failed to present any signs of healing because it had received the milk after it had been canned, whereas the other patient had received its milk in a fresh state. The latter reason was considered most improbable in view of our own extensive and satisfactory experience with food* mixtures containing a relatively small amount of cod-liver oil, as compared with the doses ordinarily advised and prescribed for the prevention or cure of rickets, and being in the process of manufacture sterilized under pressure exactly as the human milk had been. In the literature,² too, data are available which show that the antirachitic factor is decidedly more resistant to heating and oxidation processes than is the fat soluble "A" growth factor. Consequently we decided to observe suitable cases of rickets long enough to be certain that any antirachitic which possibly had been administered before admission to the hospital had had ample opportunity to give evidence of its effectiveness in the roentgenogram and in the blood serum. In this work, which will be reported elsewhere, we learned that the preliminary observation period should last from three to five weeks.

Three patients who had gone through observation periods for 48, 38 and 67 days respectively, were given the milk produced by the wet-nurses on the cod-liver oil diet. Two of these received the milk in canned form and one in fresh form. Inasmuch as all three infants failed to show any signs of improvement, no superiority of the fresh milk as to its antirachitic potency over the canned could be registered.

The following charts (see Charts I, II, and III) and roentgenograms (see Chart I) give in detail the data recorded on admission to the hospital and during the periods of observation and study as to diet, therapy, weight, roentgenograms, and blood serum calcium and inorganic phosphate figures.

In the first division of the charts is shown the blood serum calcium and inorganic phosphate levels, and in the division marked x-ray the check marks

*From the Babies and Children's Hospital, and the Department of Pediatrics, Western Reserve University, Cleveland, Ohio.

Read before the Pediatrics Section of the California Medical Association at the Fifty-Sixth Annual Session, Los Angeles, April 27, 1927.

*S. M. A. and Protein S. M. A.

show the time at which the roentgenograms were taken which showed no healing changes. The black columns indicate healing changes in the roentgenograms, and the height of the black columns indicates in a rough way the amount of healing present. The division marked K. O. C. shows the electrical excitability as measured in milliamperes. In the last division is shown the diet, therapy, and the weight curve.

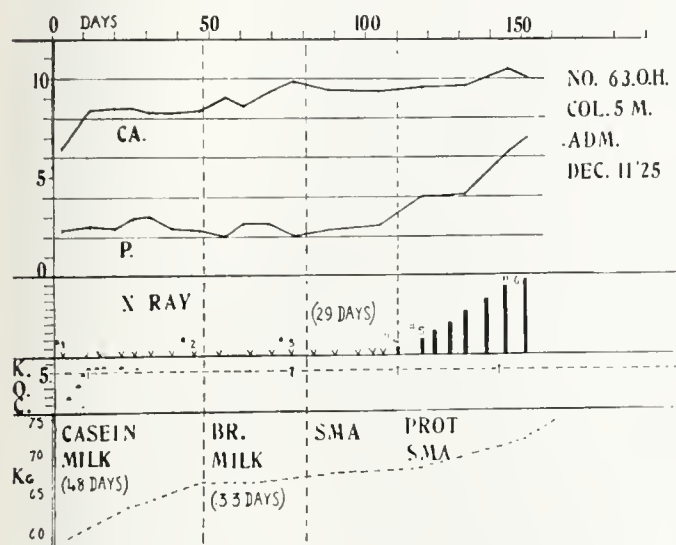


Chart I—Patient, O. H. Received casein milk for forty-eight days. Was then given 1000 cc. per day of canned human milk for thirty-three days from mothers receiving cod-liver oil; no healing changes. S. M. A. for twenty-nine days, and protein S. M. A. the remainder of the time. First signs of healing appeared twenty-nine days after S. M. A. was started.

It is clear from these records that milk obtained from mothers receiving adequate diets including one tablespoonful of cod-liver oil daily is not able to improve rickets in its active nonhealing form within a time period that has been established as more than

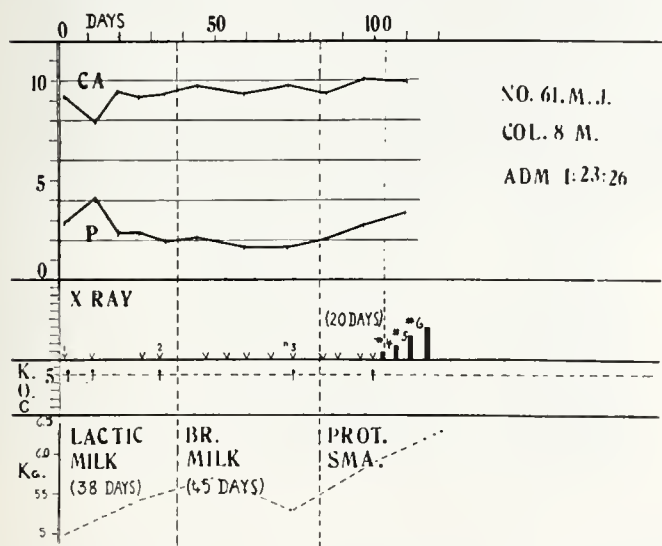


Chart II—Patient, M. J. Received lactic acid milk for thirty-eight days. Then given 850 cc. per day of fresh human milk for forty-five days. This milk was obtained from mothers receiving cod-liver oil. No healing changes. Protein S. M. A. for the remainder of the time. First signs of healing appeared in the roentgenogram twenty days after protein S. M. A. was started.

ample for food mixtures containing from 2.2 to 3.5 cc.³ of cod-liver oil per liter and for exposure to the rays produced by the mercury vapor arc and by the carbon arc.

Inasmuch as the healing of the rickets in these

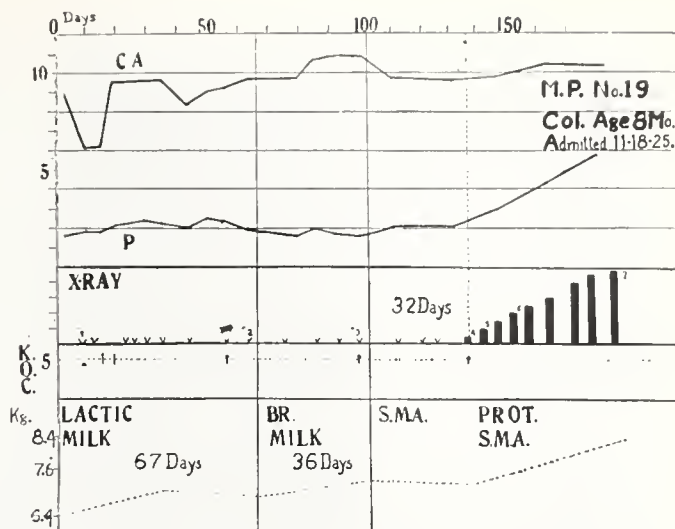


Chart III—Patient, M. P. Received lactic acid milk for sixty-seven days. Then given 1000 cc. per day of canned human milk for thirty-six days. This milk was obtained from mothers receiving cod-liver oil. No healing changes. S. M. A. for thirty-two days, and protein S. M. A. for the remainder of the time. First signs of healing in the roentgenogram thirty-two days after S. M. A. was started.

cases did not occur until after 29, 20 and 30 days respectively of adequate antirachitic therapy, we can at least add a minimum of 18 days to the number of days during which the infants received the human milk and accept the resulting figures as the time allowed the human milk to demonstrate its antirachitic power. For the three patients these figures are as follows: O. H., 51 days; M. J., 63 days; M. P., 68 days.

These negative results observed by us correspond with those reported by A. F. Hess⁴ and his co-workers for rats. Hess⁵ also has reported that human infants whose mothers had received cod-liver oil during the last part of pregnancy were no more protected against the development of rickets than were infants whose mothers had been given no cod-liver oil.

McCullum⁶ and his coworkers, however, recently have reported results in rats which indicate that if the diet of the rats is less severe than the one used by A. F. Hess, and if the mother rats get a rather liberal amount of cod-liver oil added to their food, the milk produced by them will contain enough of the antirachitic factor to protect quite well the offspring against rickets. Kennedy and Palmer have also reported that they were able to cure rachitic rats by feeding them a minimum of 8 per cent of their diet in the form of human milk fat obtained from mothers on a liberal general diet including small amounts of cod-liver oil.

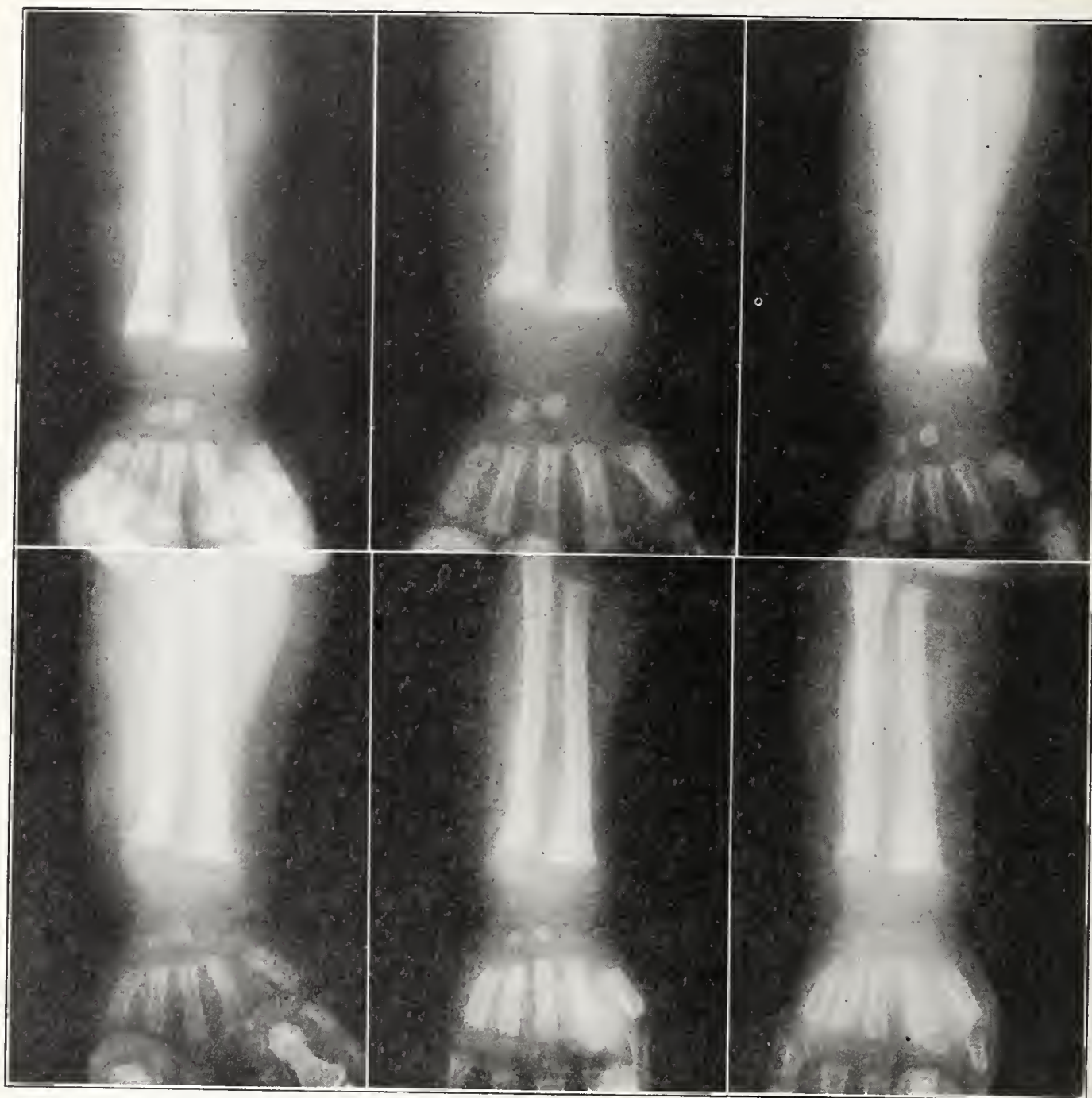
Whether or not the milk of our mothers did contain some of the antirachitic factor as the result of the daily intake of one tablespoonful of cod-liver oil, of course, is not known. It is conceivable that had we waited still longer we might have recognized its presence. However, even though this were found to be true, we still would have to conclude that the amount of antirachitic factor present in the milk of our cod-liver-oil-fed human mothers was wholly inadequate from the standpoint of curing rickets in human infants and also probably from that of prevention.

A year ago, Hess,⁷ Weinstock and Sherman re-

X-ray 1-a

X-ray 1-b

X-ray 1-c



X-ray 1-d

X-ray 1-e

X-ray 1-f

Roentgenogram I-a—Patient, O. H. Taken on admission showing active rickets. No signs of healing.

Roentgenogram I-b—Patient, O. H. Taken after forty-eight days of casein milk. No signs of healing.

Roentgenogram I-c—Patient, O. H. Taken after thirty-three days of canned human milk from mothers who had received cod-liver oil. No signs of healing.

Roentgenogram I-d—Patient, O. H. Taken after twenty-nine days of S. M. A., and seven days of protein S. M. A. Definite signs of healing.

Roentgenogram I-e—Patient, O. H. Taken after twenty-nine days of S. M. A., and eleven days of protein S. M. A. Marked healing.

Roentgenogram I-f—Patient, O. H. Taken after twenty-nine days of S. M. A., and thirty-one days of protein S. M. A. Nearly completely healed.

Roentgenograms I (a-f)—Patient, O. H. Compare with Chart I. These roentgenograms show: first, active non-healing rickets; second, the ineffectiveness of forty-eight days of casein milk and thirty-three days of human milk from mothers receiving cod-liver oil; third, the effectiveness of S. M. A. and protein S. M. A.

ported that the milk of a human mother had no curative effect on the rickets of rats when given in the dose of 25 cc. daily. When, however, this same mother was liberally exposed to the rays of the quartz mercury vapor arc lamp, the milk produced by her cured rickets in rats, producing a marked calcification of the epiphyses.

On the basis of our own negative findings with

human milk from cod-liver-oil-fed mothers and of Hess' positive results in rats fed with human milk from the mother exposed to the quartz lamp, we decided to carry out the same plan as used by us in checking the antirachitic value of human milk obtained from cod-liver-oil-fed mothers in determining the antirachitic value of human milk from wet-nurses exposed to the quartz mercury vapor arc;

i. e., we gave this milk to human infants in the active nonhealing stage of rickets.

The following charts (see Charts IV and V) and roentgenograms (see IV and V) give in detail the data as recorded on admission and during the periods of study regarding diet, therapy, weight, and findings in the blood serum and in the x-ray.

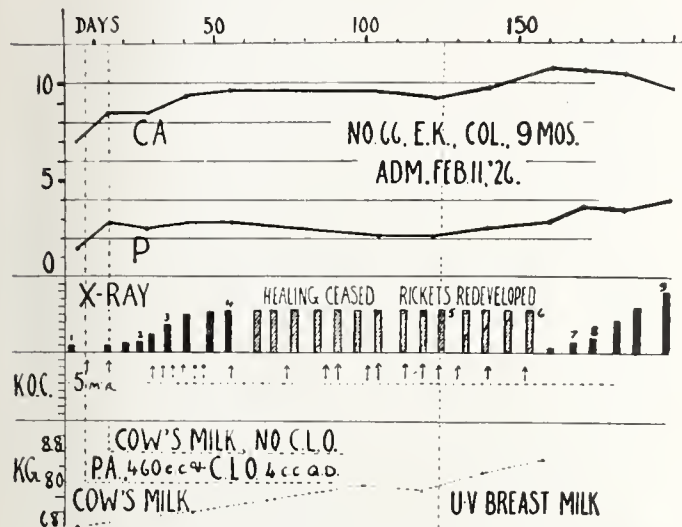
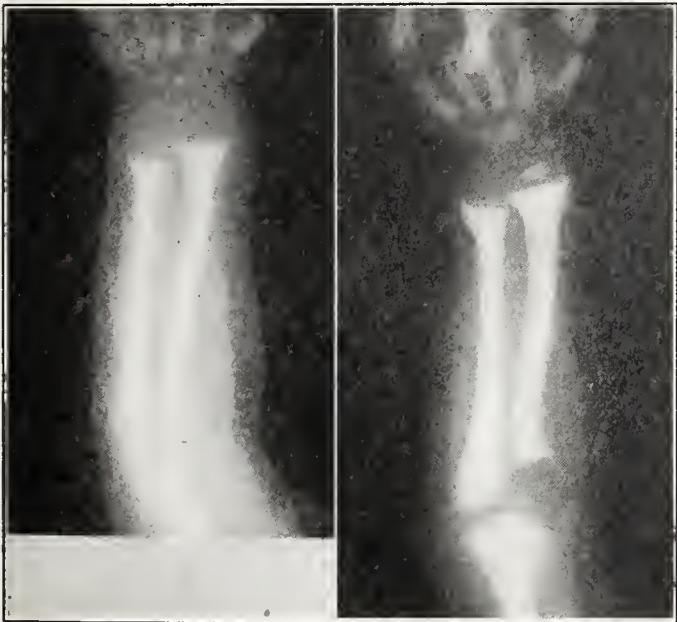


Chart IV—Patient, E. K. Roentgenogram showed healing on admission which continued for about sixty days. Received a small amount of protein S. M. A. and cod-liver oil for a few days after admission. After healing changes had ceased, rickets redeveloped. Then patient was given daily 1000 cc. of human milk from mothers who were given daily exposures to ultra-violet rays. In order to be certain of a satisfactory caloric intake, 50 grams of Borchardt's malt soup extract and 25 grams of flour were added to the diet. Healing changes were seen in the roentgenogram after thirty-two days on this diet. Healing was almost complete in ten to twelve weeks.



X-ray IV-a

X-ray IV-b

Roentgenogram IV-a—Patient, E. K. Taken after all healing seen on admission had ceased and just before ultra-violet breast milk was started. This roentgenogram is designated as No. 5 on Chart IV.

Roentgenogram IV-b—Patient, E. K. Taken after sixty days of human milk from mothers exposed to ultra-violet rays. Shows decided healing. First improvement was noted on the thirty-second day. This roentgenogram is designated as No. 9 in Chart IV.

Roentgenograms IV (a-b)—Patient, E. K. Compare with Chart IV. These roentgenograms show: first, active nonhealing rickets; second, the effectiveness of human milk from mothers exposed to ultra-violet rays.

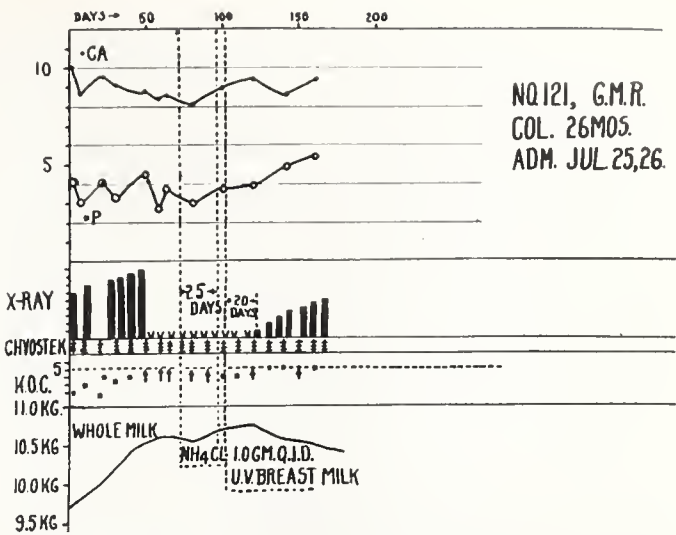
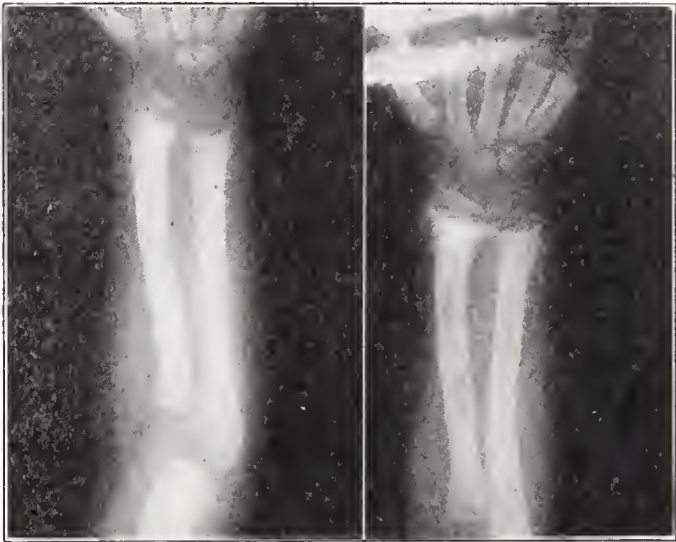


Chart V—Patient, G. M. R. Roentgenogram showed healing on admission which continued for about fifty days. After healing changes had ceased active rickets redeveloped. Then patient was given daily 750 cc. of human milk from mothers who were given daily exposures to ultra-violet rays. In order to be certain of a satisfactory protein, mineral and caloric intake was given in addition, 250 cc. of skim milk, 75 grams of Borchardt's malt soup extract, and 25 grams of flour. Healing changes were seen after twenty days on this diet. Healing was continuous to the end of the observation or for about sixty days.



X-ray V-a

X-ray V-b

Roentgenogram V-a—Patient, G. M. R. Taken fifty days after cessation of the healing seen on admission. During this period the patient received whole cows' milk. Shows active non-healing rickets.

Roentgenogram V-b—Patient, G. M. R. Taken after sixty days on human milk from mothers exposed to ultra-violet rays. Shows definite healing. First improvement was noted on the twentieth day.

Roentgenograms V (a-b)—Patient, G. M. R. Compare with Chart V. These roentgenograms show: first, active nonhealing rickets; second, the effectiveness of human milk from mothers exposed to ultra-violet rays.

It is evident from these findings that human milk obtained from mothers whose bodies have been exposed to the rays of the quartz mercury vapor arc lamp possesses antirachitic qualities that are adequate to cure in human infants a rickets in its active nonhealing form. Our results, therefore, confirm those obtained by A. F. Hess and his coworkers in curing rickets in rats with human milk from irradiated mothers.

There is, then, an enormous difference between the antirachitic efficacy of human milk produced by mothers receiving in addition to an adequate general diet a tablespoonful of cod-liver oil and that ob-

tained from mothers whose bodies have been exposed to the ultra-violet rays. The human milk obtained from our cod-liver-oil-fed mothers, as well as that obtained by Hess from the mother before exposure to the quartz lamp, showed no therapeutic properties against rickets, whereas, the human milk produced by the mothers exposed to the rays did. The latter gave evidence of its healing power on the thirty-second and twentieth days of treatment, whereas, the former showed no potency within fifty-one, sixty-three, and sixty-eight days. It should be remembered, however, that the intensity of the actinic rays produced by the mercury vapor arc lamp is considered to be thirty times as great as that of sunlight, and that the mother who produced the milk for Hess and his coworkers was very liberally exposed to these rays, inasmuch as the lamp was placed at a distance of thirty inches for four minutes or more for the first four treatments and thereafter at sixty inches for fifty-six minutes. The wet-nurses used by us were exposed less vigorously as we followed, with slight alterations, the schedule suggested by Huldschinsky for the treatment of rickets.

From our observations it is clear that human milk produced by mothers during the winter months in the northern parts of the country when sunshine is practically absent and cold and inclement weather often is present, cannot possess antirachitic properties of any account. And whether human milk becomes anti-rachitic during the summer months and to what degree is still a question. That by exposing the skin of the human mother to the sun one can produce an antirachitic milk may surely be assumed on the basis of results obtained by Hess and ourselves with the use of the quartz lamp. But whether the time required for an adequate exposure is observed by our mothers as they work, dress and live today is not known.

We hope to get an answer to this question during the coming months. Whatever the answer to this question may be, the evidence at hand today places the actinic rays in the position of first importance in the prevention and cure of rickets in growing human infants. In other words, the combination of actinic rays and skin rather than that of diet and gastrointestinal tract is primarily nature's method to protect the human infant against rickets either through the skin of the offspring or through that of its mother or both.

CONCLUSIONS

1. Human milk obtained from mothers receiving in addition to a satisfactory general diet one tablespoonful of cod-liver oil daily failed to give any evidence of possessing antirachitic properties when fed to three cases of active nonhealing rickets for periods of 33, 45 and 36 days, and within observation periods of 51, 63 and 68 days. These same infants, however, showed signs of healing both in the blood serum and in the roentgenogram within 29, 20 and 32 days of feeding of food mixtures* containing 2.2 or 3.5 cc. of cod-liver oil per liter.

2. Human milk obtained from mothers who were exposed to artificially produced actinic rays gave evidence of possessing definite antirachitic properties

in two cases of active nonhealing rickets at the twentieth and thirty-second days of feeding. The degree of healing at the end of sixty days of feeding was not quite as marked as is that usually observed by us after treatment of the infant itself with actinic rays or after the giving of food mixtures containing 2.2 or 3.5 cc. of cod-liver oil per liter.

3. It is suggested that the combination of actinic rays and skin rather than that of diet and gastrointestinal tract is primarily and fundamentally nature's method of protecting the human infant against rickets, and that, therefore, rickets is primarily a climatic rather than a dietetic disorder.

Cleveland Clinic.

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THE COMPARATIVE CONTRIBUTIONS OF LISTER AND OSLER*

By WILLIAM B. MUNRO, LL. D.
Cambridge, Massachusetts

IT may seem strange that a layman, one who has had no connection with the profession of medicine or surgery, should be given the honor of a part in these proceedings. Yet it is not altogether strange, for Lord Lister was far more than a surgeon. He was more than the founder of modern surgery. He is entitled to be called one of the founders of modern civilization. For the whole fabric that we call civilization rests upon the preservation of human life and the increase of human efficiency. He who increases the span of human life has a right to be numbered among the great, for he makes the whole world his debtor. That is why the life and work of Lister intrigue the interest, not of the medical profession alone, but the interest and admiration of the scientist, the historian, the economist, and indeed the interest of everyone whose function it is to study the progress of the social order. That is likewise my apology for venturing to address you this evening on a theme which might seem to be far out of my own province, but which in reality is not. Lister's work inured to the advantage of all mankind.

I fear that we are too much given to the habit of studying genius in isolation. We are prone to forget that the work of a pioneer in any profession exerts an influence far outside the immediate bound-

*Protein S. M. A. and S. M. A.

*Read before the Pacific Coast Surgical Association, April 5, 1927, at Los Angeles.

daries of his own discoveries, for every field of human knowledge is interwoven with every other. Progress in surgery is progress in science, and progress in science is progress in civilization. The advance in all fields must go hand in hand; it cannot be achieved in one without influencing the others, and it is by this mutual helpfulness that the integration of all knowledge is secured. You will understand me, therefore, when I speak of Lister as a maker of history, a contributor to economic welfare, and a man whose genius augmented the productive power of his fellow-men.

For the work which Lord Lister was destined to perform, he came into the world at an opportune moment. He was born in 1827, at a time when the great movement known as the Industrial Revolution was transforming the conditions of life in Great Britain. The utilization of steam power was rapidly changing the conditions of industry a hundred years ago. Great factories were springing up all over England, with new and strange machines harnessed to boilers and furnaces; machines that were wholly unguarded against the possibility of accidents to the workers, and with great bodies of employees (especially women and children) working long shifts under fatiguing conditions. Women and children were frequently required to work a ten-hour shift through the night, under the poorest artificial light, tending machines that would have been hazardous under even the best conditions. The result was that accidents happened with appalling frequency and they were always fraught with serious consequences, for infection and suppuration were the regular concomitants of even minor wounds. How great a toll of life these accidents took may be gleaned from the fact that of 2098 recorded amputations in the hospitals of London, Glasgow, and Edinburgh, no fewer than 855 had fatal results, or two in every five. And these amputations included a great many that would now be called minor operations.

It is difficult for us to realize the amazing backwardness of the science of surgery at the time of Lister's birth a century ago. It has been estimated that of the operations upon wounded soldiers during the Napoleonic wars, more than 80 per cent had a fatal outcome. Surgery was not then a science, in any sense of the term, but a crude art based chiefly upon superstition. Early in the seventeenth century William Harvey had discovered the circulation of the blood. Before the end of that same century Antony van Leuwenhoek saw and described the organisms which we now know to have been bacteria; but he had no intimation of their significance, and his discovery was therefore of very little scientific consequence. Finally, in 1796, Jenner discovered the art of vaccination against smallpox, which was the first specific prophylaxis ever devised by man. These three discoveries of Harvey, Van Leuwenhoek, and Jenner were the only outstanding contributions that had been made to the progress of medicine and surgery for twenty centuries preceding the date of Lister's birth.

Yet how marvelous was the rapidity of progress in these fields during the eighty-five years of Lister's life! While still a young man, only 33 years of age,

Lister witnessed the incoming of the germ theory at the hands of Pasteur; for in 1860 this French scientist established the fact that decay and fermentation result from the growth of microorganisms. Ten years later, in 1870, Lister himself gave the world its first conclusive demonstration of the fact that the suppuration of wounds and hospital gangrene were caused by this same phenomenon, namely, by the ingress and multiplication of those minute organisms which we now call pathogenic bacilli. Lister was greatly helped by Pasteur's discovery, for it corroborated a line of thought which had been running in his own mind. Might there not be an identity of causation between the process of organic putrefaction and the breaking down of the tissues in the human body? So he set quietly to work on this line of investigation. If the suppuration of a wound was caused by microbes, how could these microorganisms be destroyed? Strangely enough, Lister got his first useful hint toward a solution of this problem from the sanitary officers of an English city who were conducting experiments in the deodorizing of sewage. These investigators had found that the intolerable odor of stagnant sewage could be overcome by dosing it with carbolic acid. Lister went to see the process and, recalling Pasteur's demonstration, at once concluded that carbolic acid was a successful deodorant, for the simple reason that it destroyed the bacteria which were responsible for both the putrefaction and the odor. This opened up the whole vista to him. Thereafter it was only a matter of perfecting an antiseptic for the cleansing of wounds, and devising some practicable method for safeguarding wounds against new infection.

It is an old saying that chance comes only to the minds that are prepared to welcome it. There were thousands of surgeons who had read and understood all about Pasteur's discovery. There were also thousands who knew that certain chemicals, notably carbolic acid, could be used to eliminate the odors of putrefaction. But there was only one among all those thousands who had the genius to link these two things together into a single train of thought.

How amazing, after all, is the slowness of the average human mind in putting two and two together! The ancient Romans, for example, knew a great deal about malaria, for it was the scourge of the country round about the Eternal City. They knew that it was a communicable disease, that it could be carried from one person to another; they knew that it was peculiarly a disease of people living in low, marshy regions, and they were convinced that those who went abroad after sundown were particularly susceptible to malarial infection, hence they spoke of it as "the pestilence that walketh by night." In a word, if they had put all their information into an orderly and logical array there would have been no escape from the conclusion that malaria was communicated from person to person by something that thrives in swampy lands, by something that is especially in evidence during the hours when the sun is low in the heavens, by something that does not frequent, at midday, the dusty thoroughfares of a busy metropolis. The only possible answer to this conundrum would have pointed

directly to the mosquito; but not for 1500 years after the fall of Rome was any human mind ingenious enough to designate the *anopheles* as the insect that fulfilled all these specifications.

The same long interval between knowledge and the practical application of knowledge has characterized many other fields of human progress. Take the art of printing, for example. Coins are print, and the Romans had mastered the art of stamping coinage. They had seals for stamping on wax. They carved signatures on wooden blocks. All this would seem to suggest to any ingenious mind the idea of carving each letter of the alphabet separately and using them to replace the drudgery of copying whole books by hand. Yet that simple step forward was not taken for more than a thousand years.

Or, to take another illustration, and an even simpler one, the ancients were familiar with steam. They had seen water heated, and steam force its way out of closed receptacles; they could not fail to observe that here was potential energy being created; yet the world had to wait more than twenty centuries before the ingenuity of James Watt turned this energy to the service of man and thereby started a revolution in the methods of industry. What a long interval of time it has often required to carry a principle from one step to another!

And so, if Lister had not taken Pasteur's theory of the cause of organic putrefaction and applied it with intelligence and industry to his experiments in the conquest of surgical infections—if he had not done this, we have no assurance that it would have been done by anyone else in his generation. Like all other pioneers, he had to overcome all manner of skepticism, and even hostility, but he was quite oblivious to both. Indeed the history of science does not carry on its pages any investigator of greater pertinacity in his pursuit of truth. It took Lister more than twenty years to convince the world that bodily wounds are not self-infective, that the vitality of the human frame can repair injured tissues if given a fair opportunity, and that this opportunity could only be afforded by the processes of aseptic surgery. But he never wavered in his convictions, and in the end he made the truth prevail. As a benefactor of the human race there are few whose claims to immortality and to the enduring gratitude of his fellow-men are greater than his, for modern surgery has secured to us a diminution of bodily suffering and a resultant economic gain which are far beyond the power of any man to estimate.

Lister lived through an age of great scientists. He was a contemporary of Humboldt, Darwin, Lyell, Pasteur, Kelvin, Herbert Spencer, Helmholtz, and Osler—men whose discoveries compelled a complete recasting of ideas and methods in all the fields of science. There had never been such a galaxy of contemporary scientists before. We are accustomed to speak of the Victorian age—the mid-decades of the nineteenth century—as an epoch that was conventional, complacent, and turgid in its habits of thought; yet as we look back upon it in an objective way, what a great and brilliant epoch it was! The age which we somewhat contemptuously call Victorian, despite its formalism in social organization and manners, will go down in history

as one of the great ages; a period that was replete with epoch-making discoveries in one field after another; an age that gave the minds of men wholly new orientation in science, in philosophy, in religion, in literature; and, not least by any means, an era in which our progress in the conquest of disease made greater progress than in all the centuries preceding.

In this battle for the mastering of human ailments, four names stand out pre-eminent, from the layman's point of view—Pasteur, Lister, Koch, and Osler. Two of them, Lister and Osler, were men of Saxon inheritance; they spoke and wrote in the English tongue; they worked with equal success in different but closely related fields; they used different methods but with the same quiet perseverance, and history has given them a common fame.

It is interesting to compare the careers of these two men who rose to the very pinnacle of their respective professions. Lister was born in one of the suburbs of London, the child of well-to-do parents. Osler was 22 years his junior, the son of a struggling clergyman in a small Canadian village. They started life far apart, both geographically and in point of opportunity, but time and success ultimately brought them close together, Lister in London and Osler at Oxford. The two were alike in possessing minds of the inquiring type, and both acquired a fine, broad background of cultural education in addition to the more specialized professional training. Lister was a philosopher by temperament; it was his habit to relate all phenomena to great underlying principles. The central thought in all his work was the principle of inherent human vitality, the vitality of the human organism, its ability to win battles against disease whenever the odds were not too heavily adverse. Hence his experiments were all motivated by the same fundamental aim; to build up vitality, to conserve it, to protect it against breakdown. Thus a philosophy of life and its preservation guided Lister in all that he did.

Osler had less philosophy in his makeup, but he had a more vivid and a finer imagination. If Sir William Osler had not chosen to be a great clinician and the writer of the world's most admirable textbook on the practice of modern medicine, he would have won high distinction as an essayist, a historian, or a critic of literature. He possessed a fine literary sense, and it was highly developed by the excellent mastery of the classical languages which he acquired in college days. Osler never wrote anything, even of the most technical character, that was not good literature. The minutiae of diagnosis is hardly a subject that naturally lends itself to limpid writing, but Osler made it so. He wrote with a clarity that stands unsurpassed in the whole range of scientific writing and gave to even the most arid phases of his subject a freshness of presentation that served to captivate the fraternity of medicine throughout the English-speaking world. Surgeon and philosopher, physician and man of letters, these two distinguished knights of the modern chivalry bore testimony to the value of the English classical education.

Lister and Osler were alike in the strictly scientific technique which they used, yet their methods

were quite dissimilar. Lister, as a surgeon, was in the nature of things impelled to use the method of controlled experiment. He made literally thousands of experiments before attaining the perfection of the sterile gauze that is now in use the world over. Osler, as a physician, and more particularly as a student of diagnosis, was an observer rather than an experimentalist. With unremitting industry, he worked on the records of many thousand cases, assembling the main facts, tabulating them, reducing them to a common denominator, and then weaving them together into an enlightening narrative. No one has ever used the deductive method more skillfully or to better advantage than Osler did. He was imaginative, it is true, but he never let imagination interfere with the strictly scientific character of his work. With equal facility he could discuss the major symptoms of typhoid, or translate the Odes of Horace. It is now thirty-six years since Osler wrote his textbook on the principles and practice of medicine, yet even today the book has not been superseded. Seldom is it given to any work of science to hold its place of primacy so long.

It is said that among the two billion persons who inhabited this planet during the course of the nineteenth century, not more than one person in a thousand set the slightest imprint upon it. The other 999 left the world just as they found it, without having added one jot or tittle to its stock of knowledge and without having contributed a single idea that was worthy to live. The torch of progress has always been borne aloft by the very few, by those all-too-rare pursuers of the truth whose industry kindles the spark of genius into flame. It is to them that we owe all the great contributions that science has made to the comfort, happiness, and prosperity of our common race.

The advance that has been made in medicine and in surgery, in hygiene and in sanitation, in protecting the public health, in controlling the major routes of infection, and in building up the physical vigor of the people—this advance has been one of the mightiest achievements of modern civilization, quite worthy to be ranked with things that border on the miraculous. And who are they who have wrought all this? Certainly not the toilers in the fields and in the factories, to whose efforts we are so often assured that all wealth and progress are due. First and last it has been the work of highly trained specialists, using the methods of scientific experimentation in the laboratories of hospitals, medical schools, and other institutions of research. And if this remarkable advance, which is steadily prolonging the days of men's lives, is to be continued, it can be continued in no other way. As a nation we have not been ungenerous in our encouragement of scientific research, yet when we consider the immense wealth of the United States, the amount of money devoted to research in the field of public health is pitifully small. And so, as we pay tribute here tonight to the genius of Lister, one of the great benefactors of humanity, let us not forget that the work which he began is by no means finished. Despite all the progress that has been made during the past century, disease still has its mysteries. There are ailments which still defy the

skill and ingenuity of man. Let us not rest until we have conquered all of them, for there is no better way of honoring a man's memory than to finish the work that he began.

Harvard University.

THE GOITER PROBLEM *

By GEORGE W. MIDDLETON, M. D.

Salt Lake City, Utah

TO appreciate fully the wonderful strides that have been made in medicine and surgery in this modern era, one needs but turn a brief page backward in the annals of history and read. From the epoch which produced Shakespeare and Galileo, and Sir Isaac Newton in rapid succession, we get a sideline on the medical and surgical problems of the seventeenth century in the classic diary of old Sam Pepys. This distinguished character in English public affairs carried with him always a rabbit's foot to keep away the colic. But the real cause of his pain was stone in the bladder, for which he was operated by an itinerant lithotomist. This was such a tremendous event in his life that he had a jeweled casket made in which to keep the stone, and each year he celebrated the anniversary of the date with great pomp and ceremony.

It is a long hark in experience and development, though comparatively short in years, since the chaos of the days of Shakespeare. But most of that development has been within the last half century.

One of the most dramatic chapters of the history of medicine and surgery centers around the goiter problem. The great physicians and surgeons of the immediate past were baffled and overawed before a situation in which we now have understanding and perfect confidence. Thyroidectomy was thought to be an unjustifiable operation by men of the very highest standing in the generation immediately preceding to ours. Thus in 1866 we find Samuel D. Gross as quoted by Pemberton, saying, "When the tumor resists our curative efforts and endangers suffocation, it has been proposed to afford relief by extirpation, but the question arises, is such a procedure proper or justifiable? In a word, can the thyroid gland when in a state of enlargement be removed with a reasonable hope of saving the patient? Experience emphatically answers no. No honest and sensible surgeon, it seems to me, would ever engage in it." The goiter problem is interesting because of its correlation to so many other problems in the world. Geology has a bearing on it because of the deposition of iodine in certain of the rocks; geography has a bearing on it because of the great sections of the terrain in which it prevails; chemistry has a bearing on it because of the physiological bearing of the normal and abnormal products of the thyroid gland; endocrinology has an important bearing on it because we are getting glimpses of a counterbalance in the physiological processes exercised by the products of the ductless glands of which the thyroid is one of the most important.

Much is yet to be learned about the pathological background of the thyroid diseases. We are still entirely in the dark about the causes which produce

* Read before the California Medical Association at the Fifty-Sixth Annual Session, April 25-28, 1927.

the hyperplasia in exophthalmic goiter, and their relationship to the ordinary toxic and nontoxic adenomata. Our present conception of the genesis of goiter is something like this. Nature builds secreting epithelium into the acini of the ductless thyroid gland, much as the mason builds cobblestones into the curbing of the wall. Some cobblestones are left over, and remain loosely distributed about the works. Hypothetically, part of the thyroid epithelium has the function of working up iodine into thyroxine, and part of it has the function of producing colloid material to hold the iodine, both in the raw and the finished state, in suspension. Iodine is hot stuff, and it must have a vehicle to diminish its irritation to the tissues, just as we use a vehicle to dilute drugs for therapeutic use. The average-sized body requires about fourteen milligrams of thyroxine distributed throughout the tissues to keep its metabolism up to standard. No doubt the colloid of the thyroid serves as a reservoir for this finished product to distribute it out as required, just as the liver stores glycogen to dole out to the muscles. That an iodine deficiency is the cause of goiter is a hypothesis that explains some, but not all of the facts in the case. The work of Kimball and Marine in the Ohio schools seemed to demonstrate that growing boys and girls can be protected from goiter by small amounts of iodine taken internally at stated intervals. We can imagine that the epithelium of the thyroid acini take on a hypertrophy or a hyperplasia in their attempt to meet the demand of the body when an iodine deficiency hampers their work. We can imagine also that the islands of disconnected epithelium, which lie in the stroma, like the extra cobblestones in building the well curb, may take on the same hypertrophy, and produce the nodules of adenomatous goiter. Just how to connect up exophthalmic goiter with this scheme is not so easy. The intangible something which is back of the widespread, and often rapid hyperplasia of this disease has not as yet been explained. Criles' idea of an accumulating emotional cause, which harks back to our ancestry, seems to me very far from the truth. That there is an inflammatory process mixed up in this syndrome has always seemed likely to me, because we almost invariably find adhesions between the neck muscles and the capsule of the gland when we operate on these cases. Adhesions in any other part of the anatomy are always interpreted to be of the inflammatory origin. The increased vascularity may also in part have the same significance. It may yet turn out that there is a specific organism back of exophthalmic goiter. The fact that it has intermissions, and sometimes remissions, points strongly to this hypothesis. The body may establish a temporary, and sometimes a permanent immunity against an unknown organism invading the thyroid gland.

SYMPTOMATOLOGY

The classification of goiter into colloid, adenomatous, and hyperplastic is the simplest and most useful classification. That there is an overlapping of these types into one another is apparent to anybody who has given the least attention to the pathology. Thus when the colloid material shrinks under treatment, islands of adenomatous goiter may appear,

and when toxic adenomatous thyroids are removed the pathologist may find the hyperplasia of exophthalmic goiter in the same specimen. These facts have a practical bearing on our therapeutic measures. The widespread examination of school children we have had in our state, following the lines of similar investigations elsewhere, took as its postulate the position that the normal thyroid cannot be palpated through the neck tissues. I am not by any means satisfied that this is true. Judging by other structures in the body, one would expect considerable variation in size within normal limits in the thyroid. Some necks are also much thinner than others by nature, and this would make the thyroid more easily palpable. To determine the line of demarcation between the normal and the pathological thyroid by palpation would be impossible in a great many cases. Those high percentages of goiter incidence in school children given out by the examining boards were probably very misleading. So far as I know there have been no such examinations of school children in sections where goiter is not prevalent. If we had such data it would be highly useful in arriving at a conclusion as to the pathological bearing of the slightly enlarged thyroid. As cases present themselves to us for treatment, the fact that a goiter is present is obvious at a glance in the great majority. The pertinent question for us to decide is whether the goiter is toxic or nontoxic. Here basal metabolism estimation has come to our aid with a great deal of significance. But I think its usefulness is limited largely to the doubtful cases. Where a case is obviously and unquestionably toxic, basal metabolism estimation can add but little to our knowledge, but it adds considerably to the expense of an already expensive study. I attach but very little significance to it as an indicator for the safety of an operation, or to the extent of the operative procedure to be carried out at one sitting. Other symptoms are much more significant. The modern clinical study, with all our aids and abetments, has become so expensive that there is a need for curtailment wherever possible when dealing with the masses. When we are dealing with wealthy patrons, of course this does not hold. Scientific methods may become so all-searching that they go far beyond the financial possibilities of our patient. And again we may get into the habit of depending so much upon laboratory reports that we forget the tremendous significance of the simple direct clinical story, which we can draw by symptoms and signs first hand from the patient. Our most perplexing problem in dealing with goiter patients centers around toxicity of the doubtful case. When a patient has part, but not all of the syndrome and basal metabolism estimations are not accentuated, we may be in serious doubt as to the proper therapeutic procedure. If we refused to operate on all such cases we would miss some in which the results are very gratifying. On the other hand if we operate on a neurotic patient who has no hyperthyroidism, by removal of the thyroid we are apt to do considerable harm, and to add to our list another vexatious problem for the future. In these uncertain cases basal metabolism is our most reliable guide, but the judgment of the surgeon of expe-

rience in each particular case must be the determining factor.

TREATMENT

The treatment with iodine both for prevention and cure of simple goiter seems to be on a sound foundation. After the work of Kimball and Marine with the school children in Ohio, and the similar work done in the schools of Switzerland, there should be no doubt of the propriety of carrying out a prophylactic program in the schools of all goiter districts. But we fail for the most part to follow up this most important lead. The thing is so simple and easy that we are like the leper whom the prophet told to go and bathe in the Jordan for the cure of his malady and he would not believe because the thing was so easy. The experiments of David Marine have demonstrated that the amount of iodine required to make up the deficiency is exceedingly small. Ten milligrams once a week seems ample. McCarrison gives statistics to show that 5 per cent of children born of goitrous mothers will be cretin imbeciles, and Marine demonstrated that small amounts of iodine added to the dietary of pregnant animals will prevent cretinism in the offspring almost without fail. This would argue for the use of small amounts of iodine routine with pregnant women, and this should be particularly emphasized in the goiter districts. It has been my experience, and I believe others have found the same thing true, that desiccated thyroid is much more effectual as a curative for adolescent goiter than the iodine salts. We need to remember too that the treatment will be necessary for a considerable period of time before we can see results. Often after months of medication without apparent improvement the goiter will begin to diminish, and will disappear in a few days. I believe the age limit for the use of iodine for the cure of goiter, should not exceed the twenty-fifth year, and not infrequently hyperthyroidism will be induced in patients younger than this. The goiter patient who is older than 25 years must decide either to have it treated surgically or left alone. Many of these simple goiters will become toxic in due course of time, and this is particularly true of the thyroid adenomas. The safety with which they can be removed by competent surgeons is a strong argument for their removal, and if we add to the probability of the development of hyperthyroidism, the danger of substernal extension, and the possibility of malignant change, the argument becomes more emphatic.

It is doubtful whether thyroid adenomata, even in young girls, ever clear up with iodine treatment.

There is no longer any question of the propriety of treating toxic goiter surgically. The operation in competent hands has become safer than most of our major surgical procedures, and the results are in general most gratifying. To see a patient who is an emaciated, woebegone, nervous wreck, transformed in a few weeks into a glowing picture of health and efficiency is a sight to cheer any heart, and this is what you can reckon on in the great majority of these cases. Much has been written about the operation, but there are some points I would like to stress as of particular importance. Everybody agrees with the initial use of Lugol. I

very seldom do any initial ligations. I much prefer in all cases to do the excision first hand, resting the patient at any stage of the game until the viability comes back to the point of safety, and then going on to the finish. In all bad toxic cases I have a competent internist associated to watch the blood pressure and the general condition throughout the operation, and to give early warning when shock is developing so that the operative procedure can be intermitted. I use a combination of light gas anesthesia with $\frac{1}{2}$ per cent novocaine locally. The very vascular goiter is unfortunately associated with the most toxic condition. Dense adhesions between gland and muscle are common in these bad cases. To see tissues welling out blood in an avalanche when they are so friable that hemostates only break crumbling masses away, and make the matter worse, is a sight to try the strongest heart.

In this type of case I have great help from an old type of forceps known as Mesu forceps, and formerly used by the gynecologists in hysterectomy. This instrument has a very broad blade with hooks at the end, and it compresses large areas of the tissue, and holds fast. Quickly separating the muscles, and lifting the gland from its bed, I apply one or more of these Mesu forceps and the bleeding is so effectually controlled that the excision can be done deliberately. By the aid of this instrument one soon becomes master of the situation. This is the best thing that has come to me in years.

As to the amount of tissue to remove in the exophthalmic case, you can hardly take too much if you leave the posterior sheath and a thin layer. The only hypo cases I have seen are those where you get suppuration.

In those cases where the adenomatous tissue is diffuse, and not collected into masses, one cannot go to the limit one can in the exophthalmic case. Enough of this damaged gland must be left to elaborate the necessary amount of thyroxin. There will be a recurrence in a certain number of these cases, regardless of the amount you remove. Fortunately that number is small, and we still have the resource of subsequent operation at our disposal. To prevent secondary hemorrhage I place all my ligatures that go into the gland proper with a round needle, being careful not to dip deep enough to endanger nerve or parathyroid. By the use of the figure-of-eight suture, considerable sized blocks of the gland can be included, and much time saved. Besides there is no danger of a suture slipping when it is so tied into the tissues. In those trying cases where a lateral vein breaks off during the process of elevating the gland I pack the side quickly with pads of gauze, and leave it until I have everything else out of the way and the field all clear. Then by the use of proper retractors I get a good exposure and pick up the vein. One can ligate the internal jugular when driven to the necessity of it, but it is a good thing to avoid. Iodiform gauze packs can be used when there is an oozing which does not lend itself to suture, but one needs to be careful when it is removed or a secondary hemorrhage may be lighted up.

The postoperative treatment is largely expectant, though experience has shown that large amounts

that there is a potential hypoglycemia in a considerable number of cases, and the results of intravenous glucose have been most gratifying. In the exophthalmic case, where there is a recurrence, and symptoms begin to develop again, I waste no time with expectant treatment, but straightway remove the offending hyperplastic tissue. If enough is removed the relief of symptoms will be quite as prompt and satisfactory as in the primary operation.

I remove the drainage tube in twenty-four hours, and all the skin sutures at the end of three days.

If the skin adheres to the trachea, which it does in a certain number of cases, it is sufficient to follow the old line of incision and dissect upward and downward until the trachea moves on swallowing without pulling on the skin.

Such adhesions will not reform if the dissection is carefully done.

Intermountain Clinic.

KETOGENIC DIETS FOR EPILEPTICS *

By D. SCHUYLER PULFORD, M. D.

Woodland

DISCUSSION by *Albert H. Rowe, M. D., Oakland; J. Wilson Shiels, M. D., San Francisco; Arthur E. Mark, M. D., Los Angeles; W. D. Sansum, M. D., Santa Barbara; James W. Sherrill, M. D., La Jolla, San Diego.*

INTRODUCTION: Epilepsy constitutes an important public health and eugenics problem. Conservative estimates by those in a position to know indicate that there are one-half million epileptics in the United States or that one person in every 250 of our population is thus afflicted. It is therefore the duty of the medical profession, realizing this fact, to do all in its power to apply and see applied any improvement in the treatment of this disease, to encourage investigators to discover its origin and even to lend support to the enforcement of any sane procedure in prevention. By prevention I refer to the firm and mathematical working of the laws of heredity. Should we not accept the unpleasant facts so emphatically substantiated by the work of Maude Slye,¹ among others, with spontaneous tumors of mice, and enforce upon the lay mind the dangers of transmitting to offspring even this recessive unit character?

Most medical subjects in the last few years have been illuminated by a rapidly increasing knowledge in great part due to the clinical laboratory, the chemist, or the physicist. However, we must admit that as yet the cause of epilepsy is still obscure and its treatment, until recently, little advanced.

Therapy has been dictated by views of origin which have been chiefly, as follows:

1. Degenerative disorder of the nervous system.
2. Toxic, as from foci of infection or from poisons.
3. Dysfunction of endocrines.
4. Derangement of metabolism.

Elimination of foci of infection and administration of products of the glands of internal secretion

have proven valuable adjuncts to diet treatment. Pituitary extract has proven helpful in certain cases. No degenerative disorder has been found in so-called essential or idiopathic epilepsy. So the problem of treatment remains one of régime, medicines, and metabolism.

Before advancing along our main line of attack, i. e., diet therapy, let us hold clearly in mind that certain cases of epilepsy are inherently milder than others, that there are organic as well as functional epileptics, and that these differences should be recognized before interpreting response to treatment.

The object of this paper is to emphasize a simple, accurate method of writing individual ketogenic, i. e., acid forming, diet prescriptions for epileptics from Du Bois' normal basal calorie tables, Wilder's nomographic chart of the same, certain ketosis fat formulae, and Talbot's basal metabolism charts for children under 10 years of age. A discussion of the factors involved in this treatment sounds highly scientific. As a matter of fact both the principle and the method are simple. Two to three weeks hospital observation while the individual diet is to be ascertained, though not necessary, is advisable. The patient then returns home to the care of his family physician, who can continue the treatment effectively.

Priority of fasting as a treatment of epilepsy must be given to Grulpa² and Marie, who in 1910 applied their diabetic starvation régime to epileptics. Their claims are indefinite and details are lacking. Zeller,³ Wilder,⁴ Geyelin,⁵ Shaffer,⁶ Ladd and Palmer,⁷ Osborne and Mendel,⁸ and others have helped in planning safe ketogenic diets, while Wilder⁹ and Winters, Weeks¹⁰ and his coworkers and Peterman¹¹ have shown results of such diets applied.

Wilder in 1917 showed by intravenous injection of aceto-acetic acid into dogs that if they were receiving adequate carbohydrate intake, the aceto-acetic acid was promptly and completely converted into betahydroxybutyric acid, thereby showing the necessity of carbohydrate restriction in securing sufficient accumulation of aceto-acetic acid for its anesthetic effect. In fact he found carbohydrate restriction the only practical method of securing this effect. Geyelin in 1921 had reported favorable results in prolonged fasting in the treatment of epilepsy. Shaffer (1921) in a series of publications on antiketogenesis concluded a 1:1 molecular ratio of antiketogenic to ketogenic molecules to be the balance in man. He later agreed, however, with other workers that "each molecule of glucose is ketolytic for two molecules of aceto-acetic acid," i. e., that the ratio of fat to glucose formers was really 2:1.

Wilder and Winters (1922) defined the threshold of ketogenesis as "that ratio at which ketosis first appears on a diet with a disproportion of fat to glucose formers." They showed by careful metabolic studies on sixteen patients (thirteen diabetic and three epileptic) that the "ratio of ketogenic and glucose molecules at which a clinically significant ketosis appears has a value of at least 2:1, i. e., every molecule of glucose is ketolytic for two molecules of aceto-acetic acid."

Ladd and Palmer (1923) report a ketogenic anti-

* Read before the General Medicine Section, California Medical Association, at the Fifty-Fifth Annual Session, April 26 to May 1, 1926.

ketogenic ratio in terms of grams showing that clinically a 4:1 ratio is necessary for ketosis. This formula takes no account of the antiketogenic glycerol content of fat or the ketogenic derivatives of proteid.

Osborne and Mendel (1924) have shown that nutrition and growth are undisturbed in rats on diets highly deficient or entirely lacking in preformed carbohydrate. Also that on high protein, low carbohydrate, low fat diets, growth is good, but not equal to that on a high protein, high fat, low carbohydrate diet. The interesting part of their experiments to us is that with low protein, extremely low carbohydrate but a high fat diet, animals prospered until eight-tenths to nine-tenths of the caloric intake was fat. In rats even a ratio of 7 grams of fat to 1 gram of carbohydrate plus protein was well tolerated.

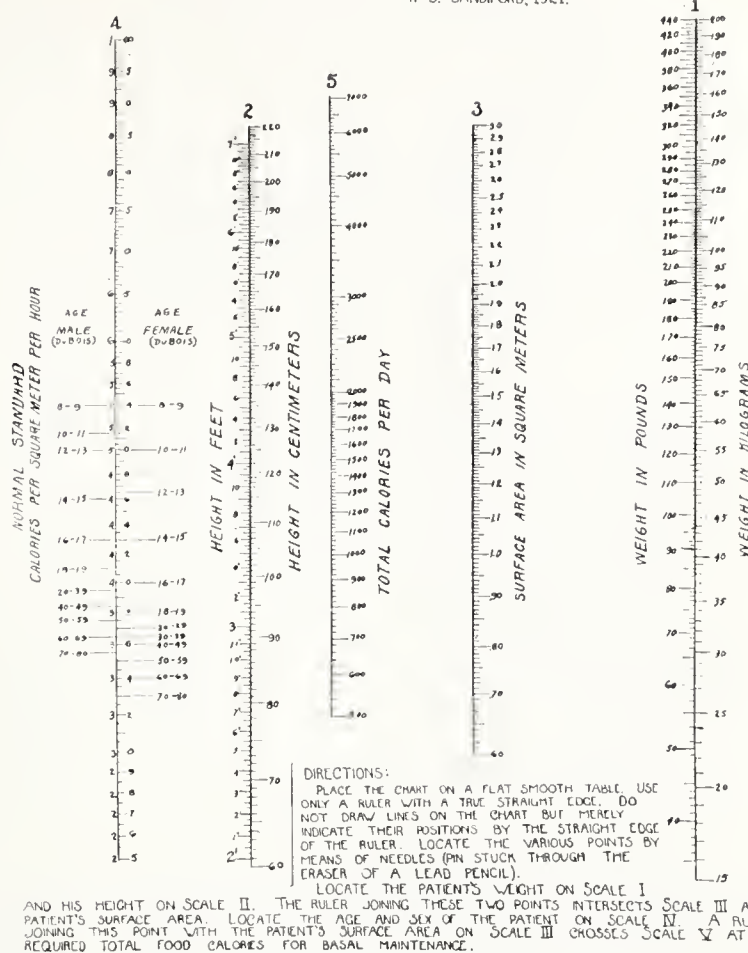
About five years ago (1921) Wilder suggested that diets low in carbohydrates and proteins and high in fat might through accumulation of aceto-acetic acid and its by-products, betahydroxybutyric acid and acetone, surpass in effectiveness fasting procedures in the treatment of epilepsy, and he proposed the scheme now in vogue for that diet.

Weeks and his coworkers (1923) treated six adult epileptics of long standing with high-fat diets. The experiment lasted only thirty-four days. The total calories exceeded the metabolic requirement during the last ten days. Fat was varied between 250 and 580 grams, protein between 15 and 22, carbohydrate between 2.5 and 3.7 grams a day. Acidosis was surprisingly slight and no improvement was noted. It is probable that a higher grade of ketosis was not observed because the 10 per cent glycerol content of the large amount of fat fed in some way changed the ketogenic-antiketogenic molecular ratio. This group of patients showed evidence of mental degeneration.

The reports of Peterman (1924-25) focussed the attention of doctors throughout the country upon this subject, because of the brilliant results obtained in his series of cases in the pediatric department of the Mayo Clinic. His patients were all under 15 years of age, the youngest being $2\frac{1}{4}$ years. Of thirty-seven cases treated nineteen were free from attacks, eight of these from 1 to $2\frac{1}{2}$ years. In thirteen the number and severity of attacks was reduced and in only one was there no improvement.

The Ketogenic Diet—As described by Peterman consists of a large amount of fat with minimal amounts of carbohydrate and protein. It should be particularly emphasized to keep the protein intake as low as 1 gram per kilogram of body weight, because of the well-known fact that 58 per cent of protein is glucose-forming. The object of the diet is, of course, to produce a ketosis, i. e., acidosis, as shown by diacetic acid in the urine. The test for acetone need not be done, as it is positive with very

CHART I FOR DETERMINATION OF TOTAL BASAL CALORIE DIET.
R. B. SANDIFORD, 1921.



mild ketosis and a grade sufficient to give the diacetic acid test must be reached for clinical success.

Each patient should receive an individual diet prescription with special account of the following three factors:

1. Total calories.
2. Nitrogen balance, i. e., protein.
3. Ketogenic-antiketogenic ratio, i. e., acid formers (fat) vs. antiacid (fat burning or glucose formers).

Vitamines, water, and salts are, of course, provided by the use of tomatoes, lettuce, salads, etc. These in turn give bulk, though 200 grams of fat a day is in itself sufficient to regulate the bowels in most cases.

1. Total calories: The basal metabolic requirement plus 30 to 50 per cent for growth and energy is the caloric allowance. It varies with the age, sex, height, weight, and surface area. From age 8 and upward it can be easily determined from the monographic chart of Wilder, Boothby and Sandiford for calculating basal calories. Three applications of a straight edge give the basal cloric requirement; 30 to 50 per cent of this figure is added. When an adult patient is above normal weight for height and age, basal calories should be calculated from the ideal weight. We may use insurance table weights as approximately accurate averages for the ideal weight. It is important that the patient should not receive food exceeding his energy needs.

For children under 8 years of age the basal calories may be taken from Talbot's¹² charts of the

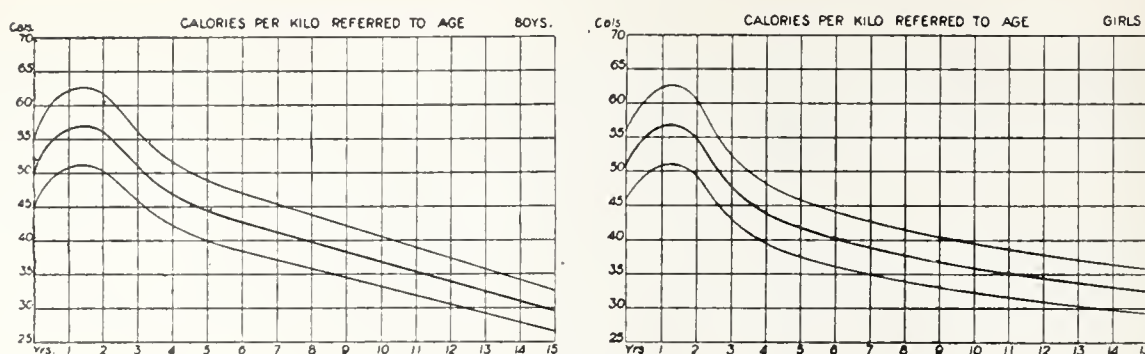


Chart No. 2

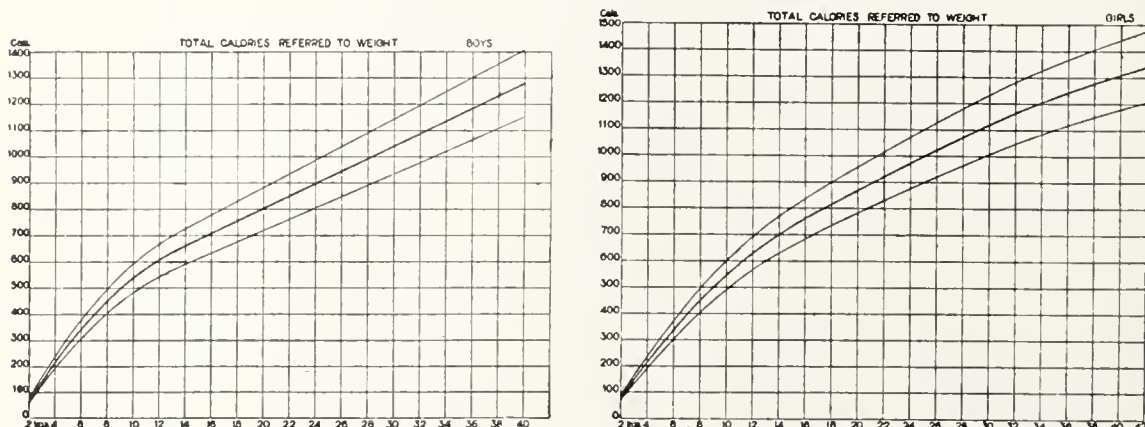


Chart No. 3

basal metabolism curves for infancy and childhood. Metabolism varies with age, sex, height, weight and physical conformity, so that a curve dependent upon any one or two of these factors can give only average figures. Variations within 10 per cent either side of the average curves, however, can be arbitrarily taken as the extreme limits of variation of children with approximately average development. Talbot shows that in children above average height and weight and with those small for age the total metabolism conforms with that expected from weight, but not for age. These variations are more pronounced in infancy than later childhood. Physical development plays an important part, but the proportions of body fat a still greater part in the deviation from normal.

We consult the curves for calories per kilo referred to age for the majority of children under 8 years of age, and the total calories referred to weight in subjects of abnormal development.

We must not forget, however, that it is ketosis which we must produce in our patient and that the curves for estimating basal metabolism are merely an indication of where to start, and that urine tests for acid bodies will be the guide as to the correct diet in the last analysis.

2. Protein: It has been sufficiently proven that growth and repair are adequately cared for in children by 1 gram of protein per kilogram body weight, and in adults by $\frac{2}{3}$ gram protein per kilogram. So on this protein allowance the patient is in nitrogen balance.

3. Ketogenic antiketogenic ratio: While a 2:1 molecular ratio of fat to glucose formers is the threshold of ketosis for most persons, a more defi-

nite acidosis is usually required so that a ratio of at least 2.5:1 should be used.

So we get protein from weight, total calories from charts, fat from a formula, and carbohydrate from the difference between the sum of protein and fat calories and total calories.

The following formula gives the amount of fat necessary for a 2.5:1 ratio when the total calories (M) and the protein (P) are fixed:

$$F = 0.101 M - 0.216 P.$$

Example: A female child, age 8, weighs 60 pounds (27 kilos), and is 4 feet 6 inches tall.

1. Basal calories from nomographic chart = 1310.
2. Thirty per cent added for energy and growth = 1703—total calories.
3. One gram protein per kilo = 27 grams.
4. To get fat substitute in formula:
 $F = 0.101 M - 0.216 P$, i. e.,
 $F = 0.101 (1703) - 0.216 (27)$, or
 $F = 172 - 6 = 166$ grams fat.
5. Carbohydrate is calculated from the difference between calories of the above protein and fat and the total caloric allowance, i. e.:

$$27 \text{ grams protein} \times 4.1 = 111 \text{ cal.}$$

$$166 \text{ grams fat} \times 9.3 = 1544 \text{ cal. Total} = 1655.$$

$$\text{Total daily caloric allowance of } 1703 - 1655 = 48.$$

$$48 \div 4.1 = 11.7 \text{ grams COH.}$$

Therefore our diet is COH, 12 grams; PROT. 27 grams; fat, 166 grams. Total calories, 1703.

This is a ketogenic-antiketogenic ratio of 2.5 to 1.

The formula for a 2:1 ratio is: $F = .099 M - .223 P$, and that for a 3:1 ratio is: $F = .103 M - .211 P$.

I have selected the following two cases to illustrate the ease with which some epileptics respond to

diet therapy and the difficulty with which others are kept convulsion-free.

CASE 1—A boy, aged $5\frac{1}{2}$, was brought to the clinic complaining of "fainting and convulsions" of five months' duration.

Family History—Negative.

Past History—The child was born normally at full term. He had whooping cough at $2\frac{1}{2}$ years, influenza about 4, both without complications. There was no history of injury.

Present Illness—Dates from March, 1925, five months before admission. For the first three months there were one to three "grand mal" convulsions a day. During the next two months their severity and frequency increased until the day before admission in August, 1925, there were sixteen generalized convulsions in twenty-four hours.

Physical Examination—Was essentially negative, including examination of the eye-grounds and x-ray of the skull. The routine laboratory findings were normal and the blood Wassermann negative.

Calculation of Diet—The basal caloric requirement, according to Talbot's normal standards of calories per kilogram referred to age, for a boy of $5\frac{1}{2}$, weighing 53 pounds (25 kilograms) is 44 calories per kilogram or 1100 calories. Adding 50 per cent for growth and energy requirements, we have 1650 calories as the 24-hour allowance. One gram of protein per kilo body weight is allowed, i. e., 25 grams. The fat for a ketogenic-antiketogenic ratio of 2:1 is figured from the molecular formula of $F = .099 (M) - .223 (P)$, where (M) is the total calories and (P) the grams of protein. This gives a fat value of 160 grams. The difference between the sum of the fat and the protein calories and the total calories is the carbohydrate allowance, i. e.:

$$\begin{aligned} 25 \times 4.1 &= 102.5 \text{ protein calories} \\ 9.3 \times 160 &= 1488 \text{ fat calories} \end{aligned}$$

$$\text{Total calories } 1650 - 1590.5 = 59.5 \text{ calories}$$

which being divided by 4.1 to give grams is 14.5 grams of carbohydrate. So the child was immediately placed upon this 2:1 molecular ratio of fat to glucose formers, a diet consisting of: carbohydrates, 15 grams; proteins, 25 grams; fats, 160 grams.

This borderline ketosis diet had a gram ratio of 4:1, four times the sum of the grams of C and P = the grams of fat.

Course—There was no nausea or vomiting on this diet. The convulsions gradually decreased. On the seventh day there were two. Since then, now eight months ago, there have been none. Urine tested daily showed acetone and diacetic acid constantly present after the seventh day. After the first two months a normal full, general diet was gradually resumed. Luminal, gr. 1, t. i. d., was given in conjunction with the diet, and is still being given. This boy is now energetic and bright, doing very well at school, and his growth and development have been normal. He is a striking example of successful diet therapy on a very low ketogenic-antiketogenic ratio. This case also illustrates the fact that the sooner the diet is begun after convulsions start the quicker and more easily results are obtained by diet therapy. As a rule the diet should be kept up for three to six months and then carbohydrate added 5 grams per week, and fat corre-

spondingly reduced, until the patient is gradually returned to an almost normal diet.

CASE 2—A girl, aged 10, was brought to the clinic because of epilepsy of five years' duration.

Family History—There was migraine on the mother's side.

Past History—Birth and early development were normal. At 9 months of age a severe urticaria followed weaning. At this time there was one general convulsion lasting intermittently for two to three hours. Severe whooping cough for eight weeks at age of 3 and measles at age of 4 were the only past illnesses. At age of 9, four years after epilepsy started, malaria plasmodium was found in the blood. The child has "always been peculiar, liking few people."

Present Illness—At $2\frac{1}{2}$ years of age, when first beginning to talk, the patient began to say, "I'm lonesome" and would then either laugh or cry in a silly manner, but there were no spasms. At 5 years of age the parents noticed "a funny look in the eyes," following which the child used to lie down feeling dazed for a time. A year later the grand mal (epilepsy) attacks began, and from then on, four years ago, there were at least one a week and as many as eight a day, with many petit mal attacks in addition. During the year 1924 the attacks averaged one a day and there were as many as six in one day, the longest free period being five days. On a ketogenic diet given at home in the last six months of 1925 attacks were reduced to an average of one every four days. This was a decided improvement, but the mental condition of the child was not normal. She was just at the threshold of ketogenesis, for the urine was at times negative and at times positive for acetone and seldom positive for diacetic acid. It is interesting to note that the majority of this child's grand mal attacks were initiated by the strange aura, the remark, "I'm lonesome," begun at the age of $2\frac{1}{2}$, with her queer and unexplained crying and laughing spells.

Physical Examination—Essentially negative. A well-nourished and developed girl, irritable, intelligent, but of painfully slow reaction time. The routine laboratory tests, including Wassermann, were normal. Stool examinations were negative. The urine showed no diacetic acid or acetone.

Course—See text for the calculation of this child's diet. On January 19, 1926, this girl was placed in the hospital upon a ketogenic-antiketogenic diet, ratio of 2:1 with 30 per cent over her basal calories for three days. This was then increased to a ratio of 2.5:1, which was well tolerated. No drugs were given. After the first five days there were no convulsions, but the urine showed only traces of acid bodies. Fifty grams of fat were added to the diet, and still only traces of diacetic acid appeared in the urine. Another 40 grams were added, making a total caloric intake of 2395 and a gram ratio of 5:1. The patient tolerated this diet well. Diacetic acid and acetone became strongly positive in the urine, but the child soon showed evidence of gaining weight. The diet was now so reduced as to keep approximately this proportion of 5:1, reducing the calories to her basal requirement plus 30 per cent and maintaining the 2.5:1 ketogenic ratio. This reduced the carbohydrate from 12 to 7 grams. She left the hospital February 6, 1926, feeling very well and much brighter mentally, not having had a convulsion for fourteen days. During the month of February there were three petit and three grand mal attacks, in the face of this high fat ratio and the presence of marked diacetic acid in urine. During the first two weeks in March a severe attack of influenza with temperature of 103.5 and great prostration ensued. This infection was well weathered without complications and without change in diet, other than an occasional orange when acidosis was marked. There were no convulsions during this fever. The urine tests for acid bodies were still strongly positive. A half grain of luminal was given at bedtime from then on. During the latter part of March there were three convulsions although acid bodies still appeared in the urine. It did not seem probable therefore that the diet had been broken. The present diet is: carbohydrate 7, protein 26, fat 170, calories 1716. This is approximately a 3:1

molecular ratio of fat to glucose formers, with 1 gram protein per kilo, and total calories not in excess of energy requirements. Even at this there was one light convulsion on April 12. There have been no convulsions since.

This case illustrated the type of epileptic who needs a very marked ketosis over a prolonged period to circumvent convulsions. The urine tests for diacetic acid must be kept strongly positive and the caloric intake must not exceed the daily energy requirement. Luminal is a useful adjunct to diet. Although it is too early to be sure that this child is cured, her general health and mental condition are so improved that the treatment is considered by the parents well worth the trouble. High fat diets do not seem to be harmful during acute respiratory infection.

Comment—Wilder's original suggestion that aceto-acetic acid produced in the blood stream physiologically by ketogenic diets would have an anesthetic effect upon nerve cells seems well borne out in practice in this treatment of epileptics. The acidosis produced is certainly a factor in controlling an irritable nervous system and a ketonuria a satisfactory indication of the desired condition.

Attention should be called to the low protein intake on which nitrogen balance, growth and repair can be maintained. Clinically no child has required more than 1 gram of protein per kilo body weight, and the adults do well on two-thirds gram per kilo. This could be anticipated, as Hinsdale,¹³ among others, has shown that nitrogen balance could be safely maintained by feeding .66 grams of protein per kilo of body weight. One of his patients on .66 grams protein per kilo had a daily excess of 2 grams of urinary nitrogen.

It is important that the total caloric intake should not exceed metabolic requirements, for even with a very high fat to glucose ratio a patient may fail to develop ketosis because the fat is being stored and not burned.

Metabolism controls the amount of aceto-acetic acid by a molecular balance between ketogenic materials such as the fats, and antiketogenic substances, i. e., COH and other glucose formers. Protein figures as antiketogenic to the extent of the glucose it can yield and this is considerable, about 58 per cent. Ten per cent of fat itself, through its glycerol content which may be a glucose former, is considered antiketogenic. So we have given us ketogenic-antiketogenic molecular ratio formulas from which we can write individual diet prescriptions containing proper amounts of fat, protein, and carbohydrate.

SUMMARY

1. Frequency: Conservative estimates by those in a position to know indicate that there are half a million epileptics in the United States, or that one person in every 250 of our population is thus afflicted.

Types: Certain cases of epilepsy are inherently milder than others. Some are organic and some show degenerative processes so marked that no treatment is of avail. The ketogenic diet treatment claims success in the mild types only.

2. Treatment: Diets containing large amounts of fat and minimal amounts of carbohydrate and pro-

tein now control many cases of epilepsy. Each patient should receive an individual diet treatment, the following three factors being especially taken into account:

- (a) Total calories.
- (b) Amount of protein (nitrogen balance).
- (c) Ketogenic-antiketogenic ratio (fat to glucose formers).

3. Prescription: A simple method of writing individual ketogenic diet prescriptions for epileptics from Wilder's nomographic chart, Talbot's basal metabolism charts for children, and ketosis fat formulae is available. The diacetic acid urine test should be kept strongly positive.

4. Results: Results are variable, each case being an individual problem, but success in many cases and alleviation of symptoms in others may be readily obtained. Removal of foci of infection and the giving of pituitary extract and luminal are useful adjuncts to the diet.

The chief reasons for failure are: That ketosis is not kept at a sufficiently high degree, that calories in excess of energy requirements are allowed and that long-standing cases, either with organic disorders or with mental deterioration, are not ruled out as unfit subjects for this treatment.

In general, epileptics are not getting the attention they deserve. Diet therapy is the best treatment we have today.

Woodland Clinic.

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DISCUSSION

ALBERT H. ROWE, M. D. (242 Moss Avenue, Oakland)—The control of certain cases of epilepsy by high ketogenic diets is of great importance, and must be kept in mind as a possible method of therapy in all cases of idiopathic epilepsy.

There are a few cases of epilepsy, especially in children, which are apparently due to protein sensitization. The literature contains several reports of such cases, with favorable results from treatment based on such diagnosis. In my own work in allergy I have one case of severe epilepsy, associated with bronchial asthma, in a boy, which has been absolutely controlled for four years with pollen therapy, and I have several records of asthmatic children who had convulsions which seemed to be associated with food sensitization. It is possible that some of the relief that is obtained with the use of high ketogenic diets may be due to the exclusion or reduction of foods such as wheat and milk, to which the patient might possibly have been sensitive. This suggestion is made with the idea of bringing the etiological factor of allergy, as a cause for a limited number of cases of epilepsy, to the attention of the practicing physician, and also with the idea of offering an explanation for some of the relief which is obtained through the use of these ketogenic diets in certain cases of epilepsy.

J. WILSON SHIELS, M. D. (490 Post Street, San Francisco)—This contribution should not only be received with appreciation, but should awaken clinicians to a keen desire to further its value by subjecting selected epileptics to the diet therapy so worthily set down.

The last sentence of Doctor Pulford, namely, "In general, epileptics are not getting the attention they deserve" is woefully true. Therefore it is the duty of all physicians to keep the therapeutic cup turned upward and catch every drop of scientific progress toward the cure of this tragic disorder. If this contribution served only as a spur to endeavor to cure, it will be worth while, but it is a valuable paper and one that should receive the serious attention of all internists.

I differ from Pulford as to the absolute need of hospital observation and education in this special diet therapy. I should be inclined to demand it. Whenever a careful test-tube analysis of a ketogenic diet is to serve as an index for treatment, and whenever a calculation of quantity and quality of foodstuffs is the foundation of that index, hospitalization is imperative. It is all very well to set down a calculation of diet for the use of the general practitioner, unschooled in modern metabolic returns, and it is most commendable to endeavor to place in his hands great aids to cure, but since many such aids are in their formulative period and since the utility advancement of medical experimentation demands most meticulous care founded on special study, I cannot overestimate the necessity of institution supervision and education of both the patient and the physician, who will be called upon to "carry on" the treatment.

This diet therapy is rational in every regard. Acetoacetic nerve cell anesthesia is, all other things being equal, a recognized fact, and therefore a controlled state of acidemia in an epileptic should and does, in selected cases, ward off convulsive seizures and thereby protect the patient from physical danger and eventual brain destruction. The great alkaline reserve of the body lessens the fear of ill consequence of this laudable endeavor. As

a matter of fact, any form of treatment, be it rational or empirical, that has been shown beneficial results should spur the profession to a greater interest in the cure or relief of this too prevalent disorder. And so I repeat my appreciation of Doctor Pulford's excellent compilation and his own results in the use of Wilder's contention and Peterman's results.

I quite agree with the doctor in canceling effort to cure advanced and organically deranged epileptics. It would be too disheartening. I would have wished him to have more strongly advised the diet therapy for adults, but always under the direction of a physician specially trained to note the indications and contradictions associated. The method of treatment demands this precaution just as much as the beginning treatment of a diabetic. It is only in this way that the full benefit of modern treatment can be secured. What the future holds in the way of general professional efficiency I cannot say, but it is only by care at the present time that we can assure ourselves of the value of new therapeutic methods and hand them down to those who follow.

I admire the ingenuous admission of the use of luminal. This in no way detracts from the doctor's plea for the use of diet therapy in epilepsy, for in truth it shows his frank exploitation of its value and adds confidence in his reported cases and Wilder's contention that a blood stream containing aceto-acetic acid is a blood stream capable of inhibiting the irritation of nerve cells. Again I approve of his advice to use diacetic acid as an index in the urine rather than acetone, its decomposition product.

Finally, Doctor Pulford's summary of the subject has been most thoughtfully worked out and is a worthy addition to this important therapeutic subject.

ARTHUR E. MARK, M. D. (1680 North Vine Street, Los Angeles)—Pulford has presented us with a most interesting and valuable paper.

Idiopathic epilepsy, which constitutes the greatest percentage of epilepsy, is, as brought out by the essayist, unattended by degenerative changes. The patient with this type of epilepsy is practically always in perfect physical condition.

The importance of heredity cannot be stressed too strongly, especially in epilepsy developing on a migraine basis. The latter is a fairly common occurrence. Both migraine and epilepsy are periodic seizures of an explosive type often precipitated by seemingly trivial influences. Patients subject to either of these two afflictions possess a nervous system which is hypersensitive. Epileptic seizures, as well as migrainous attacks could be explained on the basis of a temporary edema of the brain very similar to the changes occurring in the chest during an asthmatic attack.

It is logical to assume that pathologic changes of a transient character are present during attacks of epilepsy and migraine.

The etiological factor of allergy, as brought out by Rowe, could explain transient pathological changes, and should not be lost sight of, especially in certain cases of epilepsy occurring in children. With this possibility in mind a more extensive use of sensitization tests should be encouraged. At all events our treatment of necessity must be of such a nature that it will render the nerve cells less sensitive to both external and internal stimuli. Such seemingly trivial factors as eyestrain are very important in this connection. The use of luminol, bromides, etc., while of extreme value, should not be utilized to the exclusion of other measures.

It has been repeatedly emphasized that a high protein diet is inadvisable in epilepsy. High protein intake activates metabolism and, in general, acts as a nerve stimulant. Diets high in carbohydrates are productive of gastric irritation, which in turn favors the development of epileptic attacks. The logical diet, especially in view of the anesthetic effect produced by the resultant acidosis, is one high in fats and low in carbohydrates and protein. A more universal use of the high fat diet should be practiced, re-enforcing it with luminol and other measures, as brought out by the essayist.

It should be borne in mind that a form of epilepsy unattended by mental deterioration occurs from time to

time in children up to the ninth or tenth year of age. These cases are of special interest, as frequently many spells may occur daily. Spontaneous cure around the tenth year of age is common. Control of the attacks is often obtained by caffein citrate. This type of case should be especially responsive to high fat diet.

How long to keep an epileptic on a diet of this type is often a difficult question. Over a period of six to twelve months no evident injury occurs. I would like to ask Pulford if, in his opinion, persistent use of high fat diet alone might through its anesthetic effect on the nerve cells produce changes similar to those occurring following prolonged use of bromides. Personally, I believe that all patients with idiopathic epilepsy should be given the benefit of this treatment. I would also suggest that we use it in occasional patients with migraine.

W. D. SANSUM, M. D. (Santa Barbara Cottage Hospital, Santa Barbara, California)—Doctor Pulford's paper represents very careful work and is both interesting and instructive. Many physicians will not appreciate how low the carbohydrate and protein must be reduced and how high the fat must be raised until they have tried to cause the constant appearance of diacetic acid in the urine. The slight acidosis which occurs in the beginning when more carbohydrate and less fat are used soon disappears. In this respect the epileptic patient is different from the diabetic patient who has a severe and constant acidosis on a much higher carbohydrate-fat ratio. I believe that insulin is more directly concerned in the burning of fat than is usually supposed. The epileptic patient who can make an abundant supply of insulin is therefore less sensitive to acidosis than the severe diabetic patient with his limited supply of insulin. It will be interesting to note whether epileptic patients treated with ketogenic diets lose in sugar tolerance as diabetic patients do when a continued acidosis occurs.

JAMES W. SHERRILL, M. D. (The Scripps Metabolic Clinic, La Jolla, San Diego)—In this valuable paper Pulford has mentioned the various dietary régimes used by early investigators in the treatment of epilepsy, also the fasting treatment employed by Geylein, which in 1921 gave early promise of good clinical results, but which later work failed to fully substantiate. He has called attention to the fact that it must be held clearly in mind that there are organic as well as functional epileptics, and that relief may not be expected if there is an associated degenerative process. The general poor results accomplished by diet measures, as reported in the literature, are most probably due to failure to take this fact into consideration. I have observed fourteen cases of adult epileptic patients of varying degrees of severity and deterioration subjected to complete experimental fasts ranging from fourteen to twenty-one days. Attacks were undoubtedly less frequent, probably due to coincident decrease of metabolic and catabolic processes, but such treatment is devoid of any real therapeutic benefit. The excretion of acid bodies in these cases was not as marked as in the case of the ketogenic diets reported by Pulford. I have also observed several epileptic patients subjected to high fat feeding over long periods of time without benefit. It is very extraordinary the large amounts of pure fat which the epileptic will ingest in the course of twenty-four hours; frequently 300 to 500 grams. Pulford has called attention to the necessity of the restriction of the total calories in the diet to not more than 50 per cent above the maintenance requirement, likewise the importance of the preponderance of fat to carbohydrate in order to secure beneficial results. The application of ketogenic diets as outlined in this paper constitutes the most successful form of diet therapy for the epileptic yet recorded in the literature.

DOCTOR PULFORD (closing)—Doctor Rowe's observation that allergy plays an important rôle in the etiology of certain cases of epilepsy is distinctly worthy of consideration. The suggestion of Doctor Mark that attacks of migraine and epilepsy have certain factors in common should prompt some of us to place a few cases of severe migraine on this ketogenic diet régime. As far as the reports in the literature go, high fat diets have never been observed even over a period of a year or more to cause

any noticeable change in the nervous system either of animal or man, though of course the latter have never been subjected to objective examination.

The author is duly grateful for the added points brought out in the discussion.

THE USE OF GLUCOSE AND INSULIN IN THE PREVENTION OF SURGICAL SHOCK*

By C. MAX ANDERSON, M. D.
Hermosa Beach

DISCUSSION by M. C. Terry, M. D., Los Angeles;
Howard F. West, M. D., Los Angeles.

AN enormous amount of experimental work and study has been done on shock by eminent surgeons and laboratory workers in an attempt to find the causes of and apply the remedies for the prevention and cure of this dreaded complication of serious surgical procedures. The subject is so complicated, and the eminent workers in this field have held such divergent views, that the student is apt to feel more or less at sea in his study of it. Boyd¹ says: "The subject of shock is one which has exercised the medical profession for many years, more especially since the development of abdominal surgery, for it still presents what is perhaps the greatest menace to abdominal operations. . . . Even yet, however, although great advances have been made, and many theories previously held have been exploded, it cannot be pretended that the mystery has been finally solved."

Surgeons were quick to see the value of insulin in the preparation for operation of those patients handicapped by diabetes. But its importance in surgery uncomplicated with diabetes is only just beginning to be recognized by a few. To me this has become a field of investigation of most engaging interest relative to acidosis and shock or exhaustion, and one that may possibly overshadow all others in the importance of its results.

Thalhimer² first proposed the use of glucose and insulin in the treatment of nondiabetic acidosis. Moynihan³ calls this reference "The supremely important suggestion."

At the outset it may be well to state that I do not conceive of surgical shock only in the terms of that extreme condition of exhaustion that precedes dissolution, but think of it as well in terms of the earlier and lesser degrees of exhaustion, marked by increased pulse rate, fall of blood pressure, and decrease in feeling and appearance of well-being following all major surgical procedures. It seems to me that all major surgical procedures produce a reaction on the patient, approaching to a greater or less degree that extreme state of exhaustion commonly known as surgical shock.

Having in mind the work of Thalhimer² and that following of Fisher and Snell⁴ on the treatment of nondiabetic acidosis, the following tabulation of case histories of patients given glucose and insulin preoperatively is more than suggestive of the

* Read before the Los Angeles County Medical Association, October 7, 1926.

Case	Operation	Time on Table	Pulse Rate		Remarks (Vomiting, etc.)	End Result
			Begin.	End.		
Mr. H. Age 40.	Resection pylorus. (Short loop Polya). Ether		64	70	No postoperative vomiting. Recovery. Excellent postoperative condition—patient was so starved before operation he could not stand alone. Considered nearly hopeless risk.	
Mrs. B. Age 54.	Removal sarcoma of right thigh (large). Hysterectomy. Ether.	2' 17"	112	100	Splendid postoperative condition. See chart of B. P. and pulse during operation. Recovery.	
Mrs. H. Age 42.	Hysterectomy. Appendectomy. Ether.	1' 20"	116	100	Remarkably good postoperative condition. This patient had marked anemia from uterine hemorrhage. H. B. 63 per cent. R. B. C. 3,420,000.	
Mrs. B. Age 55.	Amputation of cervix, anterior colpoplasty, perineopoplasty, supravaginal hysterectomy. Ventral suspension of stump. Ether anesthetic.	2' 25"	74	88	Uneventful recovery. Very little postoperative vomiting.	
Mrs. M. Age 54.	Ventral suspension, anterior colpoplasty and perineal repair. Ether anesthetic.	2'	76	102	No postoperative vomiting. Uneventful recovery.	
Mrs. P. Age 27.	Baldy Webster shortening of round ligaments. Appendectomy. Ether anesthetic.	1' 10"	70	84	No postoperative vomiting. Uneventful recovery.	
Mrs. M. Age 28.	Left inguinal hernia repaired. Local anesthetic.		78	68	No nausea or vomiting. Excellent postoperative condition.	
Mrs. M. Age 63.	Anterior gastroenterectomy. Rectal ether anesthetic.		80	107	Little vomiting at first. Patient died a week later from mesenteric thrombosis.	
Mrs. F. Age 43.	Supravaginal hysterectomy. Ether anesthetic.	1' 22"	80	80	Excellent postoperative condition. No vomiting.	
Mr. C. Age 26.	Cholecystectomy. Adhesions removed. Polya resection of pylorus. Ether.	4' 0"	102	120	Quite ill. Postoperative gastric hemorrhage; several blood transfusions. Postoperative intravenous glucose and insulin several times. Eventual good recovery.	

possibility of shock prevention through the use of glucose and insulin.

On the following page is an operative chart of pulse and blood pressure of patient having a sarcoma removed from leg, followed by hysterectomy.

We have used glucose and insulin preoperatively on approximately thirty patients with excellent results. The above ten representative cases have been selected mostly on account of the difficulties encountered, prolonging the operation, and thus naturally tending to produce shock. The longest time was four hours on the operating table, with an average pulse rate at the beginning of the operation of 85.2 per minute, and at the close 91.9 per minute—an increase of only 6.7 beats per minute.

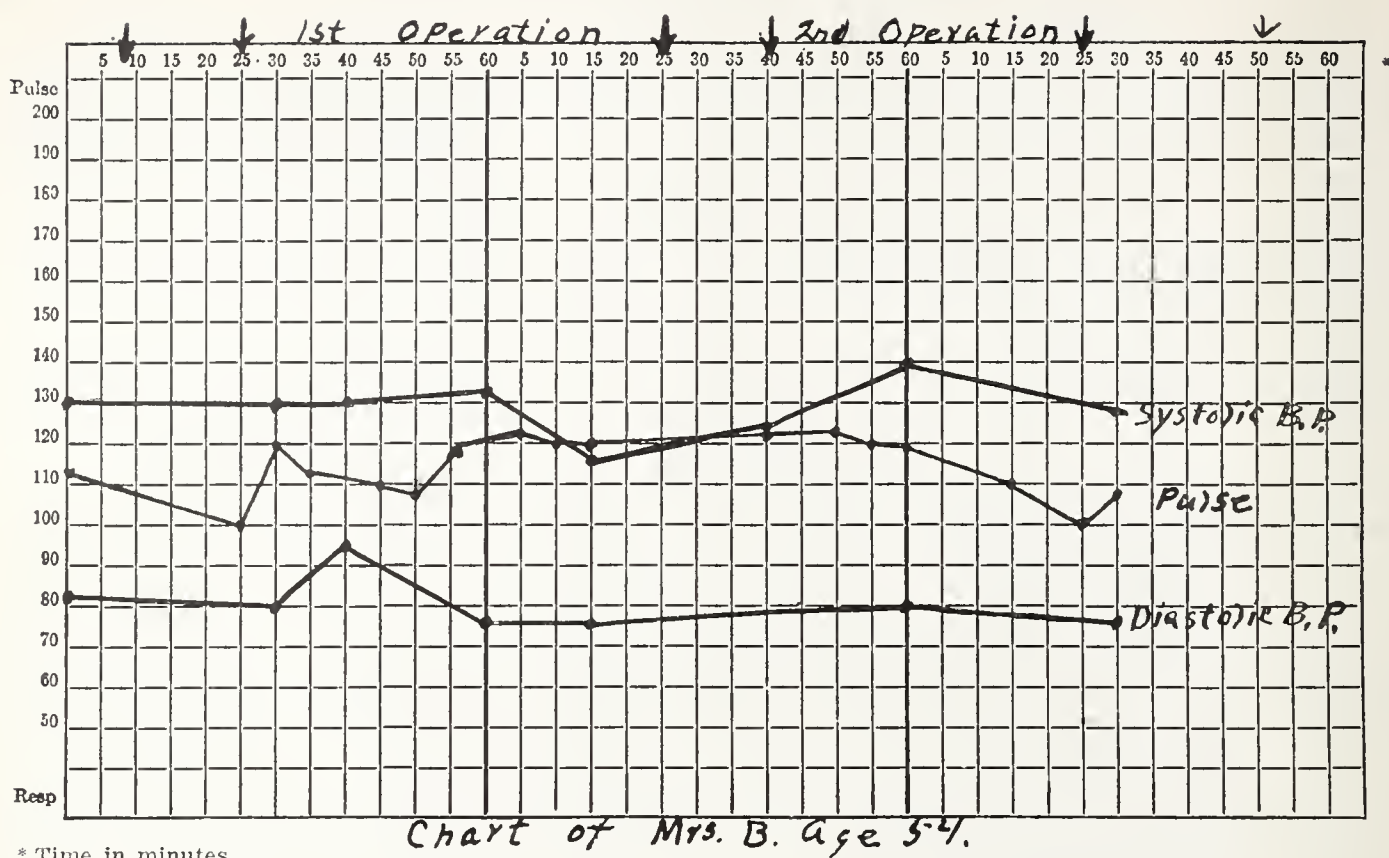
The difference in general postoperative condition of our patients is so marked that our assistants and nurses are enthusiastic about it. Our superintendent, who was seven years surgical supervisor in St. Luke's Hospital, Chicago, thinks she never before saw patients look and do so well postoperatively.

That acidosis is at least a constant accompani-

ment of shock, I think is generally admitted. The form of acidosis we are dealing with in surgical shock as well as that occurring in anesthesia is known as ketosis. It is the same as that found in diabetes and starvation.

Without going deeply into the physiochemistry of the blood and the fluids which bathe the tissues of the body, a few well-known facts with reference to acidosis may be recalled. The alkaline reaction of the blood and these fluids is exceedingly constant according to Macleod,⁵ not varying more than PH 7 to PH 7.52, life being incompatible with great changes, actual acidity of course never occurring. This constancy is maintained by certain substances in the blood, termed buffer substances, which permit of considerable excess of either acid or alkali being added without change in its reaction, since they "soak up," so to speak, the added H or OH ions. This action is largely by phosphates and bicarbonates.

That form of acidosis known as ketosis is brought about by a faulty or incomplete metabolism of the



* Time in minutes.

fatty acids as in starvation or diabetes. It seems that the fats are more difficult of oxidation in the animal organism, and that the carbohydrates are required as the fuel for their complete combustion. The abnormal acids here produced by incomplete oxidation of the fats are B-Oxybutyric ($\text{CH}_3\text{CHOHCH}_2\text{COOH}$) aceto acetic ($\text{CH}_3\text{COCH}_2\text{COOH}$) and acetone (CH_3COCH_3). These substances are known as ketones. These are the kinds of acids we have to deal with both in anesthesia and in shock.

Now let us consider a few of the theories that have been advanced to explain the phenomena of shock.

1. Paralysis of the vasomotor center causing a universal dilatation of the arterioles, thereby reducing the peripheral resistance with consequent circulatory failure. This has been proved untenable, as it has been shown that the vasomotor center is practically normal and the arterioles are contracted in shock.^{5 5a}

2. Paralysis of the splanchnic vessels resulting in bleeding the rest of the body into the splanchnic area. It was soon shown, however, during the recent war that in wound shock the splanchnic vessels were not enlarged.⁵

3. Capillary paralysis. Boyd⁵ says: "The fundamental condition in all varieties of shock appears to be the empty state of the vessels. The heart has not sufficient blood upon which to contract, and the vital as well as the higher centers suffer acutely from lack of nourishment." . . . "At the same time there is an increased permeability of the capillary walls, so that a considerable quantity of fluid passes out into the tissues, although not sufficient to produce edema, with the result that the blood becomes concentrated."

4. Histamine and like substances resulting from

trauma of the muscles and other tissues producing a toxemia that was responsible for the chain of symptoms present in shock. Turck⁶ makes a strong argument for this theory, as does W. B. Cannon.^{6a}

Macleod⁷ says: "Taking the results as a whole and comparing them with clinical experience, a very strong case is made for the hypothesis that surgical shock is essentially due to intoxication by materials derived from damaged tissue."

5. The acapnia theory of Yandell Henderson is based upon the importance of CO_2 as a respiratory stimulant. He thinks the rapid respirations caused by painful stimuli, fear, etc., remove so much CO_2 from the body by excessive overventilation of the lungs that the normal stimulus to respiration is removed and that the later depression of respiration causes an oxygen starvation of the tissues and a resultant acidosis. Boyd⁵ says "such a theory would be difficult to accept unless overwhelming proof could be brought forward in its favor."

6. Crile⁸ believes shock to be an intracellular acidosis. He says: "From the fact that the cellular changes are apparently identical, whether produced by the injection of acids, by interference with oxidation, or by excessive oxidation; and, from evidence to be shown later, it would seem that a state of intracellular acidosis exists in exhaustion. We found that acidosis was produced by many causes, and a most striking and illuminating fact that inhalation anesthetics cause acute acidosis."

"This suggested studies of acidosis in its relation to shock and exhaustion which were undertaken in collaboration with Dr. M. L. Menten, and later a research on the reserve alkalinity which was investigated in our laboratory by the method of Van Slyke by Drs. W. H. Crozier, W. B. Rogers, and B. I. Harrison. When we found that acute acidosis

was present in all cases of shock and that the alkali reserves were reduced, we hoped that the work of Howell and of Seelig had indicated the long-sought specific, viz., the administration of sodium bicarbonate. But once again we were disappointed, as alkalization resulted in only a temporary improvement; although as it seems to have some therapeutic value, we use in the clinic a 5 per cent solution of sodium bicarbonate with 5 per cent glucose as a routing rectal tap in cases in which exhaustion is present or threatened.

"It has long been evident that the word shock is a loose and unscientific term. We realize that it could well be dispensed with and the word exhaustion substituted. There is no clearly defined difference between exhaustion from this or from that cause. Whether an intracellular acidosis is established in the brain cells as the result of an excessive functional activity which forms acid by-products faster than they can be eliminated, as is the case in excessive exertion, excessive physical injury, excessive emotion, excessive electric stimulation, excessive adrenalin stimulation; whether the intracellular acidosis is caused by lack of oxygen as in asphyxia, in gas poisoning, in imperfect circulation, in excessive hemorrhage; whether the intracellular acidosis is caused by the intravenous injection of acids, or whether the acidosis is due to a disturbance of the physiologic equilibrium of the cell by adrenalectomy, or excision of the liver, the ultimate result is the same, and the fundamental factors which accomplish restoration are the same.

"We have come to look upon shock as an interference with the most fundamental mechanism of life. *An interference with the mechanism for the transformation of energy.* (Italics ours.) We have seen that extremely diverse factors are synergistic in the production of shock; that in general the cause of shock may be roughly divided into two groups, one comprising those in which an excessive energy transformation leads to intracellular acidosis, the other including those which cause intracellular acidosis and interference with internal respiration without an excessive transformation of energy. We have, therefore, designated our interpretation of shock the *Kinetic Theory of Shock.*"

Some exceedingly important experimental work bearing on this subject was reported by Best,⁹ Smith, and Scott. They found that an etherized dog's blood contained 0.29 units of insulin per 100 cc. of blood as compared with 2.93 units per 100 cc. in a normal dog's blood and 1.66 units in a diabetic dog's blood.

Some other important work bearing on this subject is reviewed in the 1925 Year Book, General Surgery, page 27.

"A series of 150 cases was investigated by F. Schultze as to the relation of anesthesia to acidosis: acetonuria was found in 67 per cent after general anesthesia, in 85 per cent after local, and 40 per cent after spinal. Evidently it is not due to the anesthetic alone. Postoperative acidosis is due to age, sex, and a systemic predisposition. It seems to be a reaction to the shock of operation.

"Some toxic conditions following ether and their successful treatment are referred to by R. J. Minnitt. He described the symptoms after ether

in the nondiabetic case as being less than, but comparable with, those occurring in the diabetic. A definite relationship existed between the hyperglycemia associated with ether anesthesia and the toxic symptoms. He suggested that treatment for these should be upon the lines found so successful in the diabetic, and drew the following conclusions from eight out of about thirty cases:

"That there is a definite rise in blood sugar varying with the length of anesthesia. Where the blood sugar falls at the conclusion of the anesthesia to approximately normal, and does not rise again, the patient suffers little, if at all, from vomiting, pallor, or acidosis. In the sugar-tolerance test performed before and after anesthesia the blood sugar curve is so altered as to show the efficiency of pancreas is impaired. Patients who exhibit toxic symptoms after anesthesia have a simultaneous secondary rise in blood sugar. Following the administration of insulin to patients with these symptoms, when the blood sugar is reduced they recover. The administration may have to be prolonged until the blood sugar is reduced, for it is not until then that improvement takes place. The administration of insulin at the end of ether anesthesia can mitigate the toxic symptoms or prevent them."

It seems, therefore, from our observations that surgical shock is a suboxidation due principally to insufficient elaboration of insulin in the tissues with a resultant acidosis probably intracellular as suggested by Crile.

This gives a more plausible explanation of the suboxidation than Yandell Henderson's Acapnia theory. One can readily see how toxins such as histamine-like substances might inhibit the body's output of insulin. Also how other untoward events such as fright, worry, pain stimuli, etherization, etc., might decrease its output. We know that emotional states very materially effect the output of other glands than the pancreas. Clinical experience and observation upon the carbohydrate tolerance of the diabetic indicates such is the case.

Furthermore this intracellular acidosis will explain the passage of considerable fluid into the tissues with a resultant blood concentration and the circulatory failure due to emptiness of the vessels as mentioned by Boyd⁵ and others. We have only to recall in this connection M. H. Fischer's¹⁰ theories relative to the production of edema. He believes that the cause of edema is the production of acids within the cell which lead to an imbibition of water by the colloids of the cell. This also in turn explains the lowered blood pressure that the earlier observers tried to explain on the theories of splanchnic paralysis and paralysis of the vasomotor center with arterial dilation.

With the foregoing discussions of acidosis and of the numerous theories of shock in mind, together with the knowledge that insulin is the natural oxidizing agent of the body for sugar, it is only logical to conclude that we have in the administration of glucose and insulin a specific, not alone in the treatment of acidosis and shock, but also for its prevention.

There are two other important and probably

fundamental factors to be considered in connection with this subject.

The first is that of heat. We, of course, know that the body processes are chemical reactions and that chemical reactions are accelerated by heat. It has long been recognized that it was important to conserve the heat of the shocked patient. Crile¹¹ has recently markedly lessened the tendency to shock by giving diathermy through the liver while operating. What more ideal method of conferring heat upon each individual cell of the body could be thought of than that of giving glucose and burning it up with insulin. This, of course, is probably more of a factor in the treatment of shock.

The second other factor to be considered is the dual action of insulin. Recent experimental work¹² has shown conclusively the very interesting fact that insulin possesses a dual action in the lowering of the blood sugar. The first and that which has been recognized from the time of its discovery is known as its hormone action and "aids in the fragmentation of the sugar molecule." The second is its action on the glycogenic function of the liver through the parasympathetic nervous system so that glucose is removed from the blood and stored in the liver as glycogen. This fact may have a very important bearing on the shock prevention we have noted. The filling to overflowing of the glycogen stores may very well be a very potent factor in the prevention of exhaustion. A large portion of surgical cases are ill, their appetite is poor and they are worried, their state of nutrition is poor, all of which favors depletion of the glycogen stores. In the olden days the custom was to starve and purge the patient preparatory to operation. The natural consequence was depletion of the glycogen stores and promotion of acidosis. Shock was certainly more common in those days than now. Surgeons have generally recognized that this method of treatment is a mistake, and today one rarely sees it carried out to any extent.

Our usual method of procedure is to give 60 grams of glucose in a glass of lemonade followed with 20 units of insulin by hypodermic the day before operation. At first we gave our glucose intravenously in 10 per cent solution, but found at times that we got rather severe reactions. Since changing to mouth administration as a routine method, our results seem to be quite as good and the patient is saved considerable discomfort at times and possibly some danger. Intravenous administration is reserved for certain selected cases in which oral administration is for some reason contraindicated.

CONCLUSION

This work was begun about two years ago as a result of Thalheimer's work and that of Fisher on nondiabetic acidosis. It was linked with Crile's theories of an intracellular acidosis in shock. Unknown to us Thalheimer began using this method in the treatment of shock and also in prevention in unfavorable risks about the same time or before this work was undertaken. I believe the simplified technique of mouth administration of the glucose together with the suggestion that *surgical shock is a suboxidation, due principally to insufficient elabo-*

ration of insulin in the tissues, with a resultant intracellular acidosis is original with me.

113 Pier Avenue.

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11. Crile, George W.: Diathermy in Abdominal Operations, Surgery, Gynecology and Obstetrics, February, 1926, p. 218.
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DISCUSSION

M. C. TERRY, M.D. (921 Consolidated Building, Los Angeles)—I had the opportunity of observing Doctor Anderson's sarcoma case during the operation and afterward when the patient was recovering from the anesthetic, and I found the pulse in rate and quality to be as he has reported it, remarkably good for so prolonged and shock-producing an operation.

The experiments of Hepburn and Latchford¹ on the sugar consumption of the isolated rabbit heart transfused with Locke's solution containing 0.2 per cent dextrose showed that the addition of glucose to the transfusion fluid greatly increased the sugar consumption of the heart. This suggests that Anderson's results may be due, in part, to direct support of the heart muscle during a time of special need. Orsato² has based an insulin-dextrose treatment of typhoid and heart insufficiency on the results of similar experiments.

HOWARD F. WEST, M.D. (1032 West Eighteenth Street, Los Angeles)—While the theory of shock and the interpretation of the exact rôle of insulin in carbohydrate metabolism as expressed in Doctor Anderson's paper may be open to discussion, there is definite evidence for the practical use of insulin and glucose in preparing patients for operation. Very suggestive indications of a decreased pancreatic function during operative procedures have been described by a number of workers. This seems especially true when ether is the anesthetic. The characteristic findings are an increase in blood sugar, blood cholesterol and fatty acids with a tendency to ketosis. All of these abnormalities may be lessened or entirely con-

1. Effect of Insulin (Pancreatic Extract) on the Sugar Consumption of the Isolated Surviving Rabbit Heart. J. Hepburn and J. K. Latchford, Am. Jour. Physiol., lxii, No. 1, September, 1922, p. 177 (bibliography).

2. Insulin-Glucose Treatment. S. Orsato, Zeitschr. f. d. exper. Med., Berlin, Vol. 51:333-602, July 21, 1926, p. 488, abs. Jour. A. M. A., October 2, 1926, p. 1165.

trolled by insulin. The recent paper of Mahler¹ may be cited in this connection.

My own experience has been confined largely to surgery among diabetics. The absence of postoperative shock in those patients receiving insulin and glucose either just prior to or during anesthesia has been most gratifying. This has been true even in those patients where surgical emergencies have not allowed time for adequate diabetic control preceding operation. The difference between the diabetic and the nondiabetic under surgical conditions seems to be one of degree only.

While the absence of shock in Anderson's patients speaks well for his routine, it would seem that a still greater protection might be given to the patient if the insulin and glucose were given nearer to the time of operation. Most patients are taking food, especially the more concentrated carbohydrates, the day before operation, and in these the glycogen stores can be kept filled. If additional glucose and insulin could be given within two to six hours of the operation, one would expect maximum protection at the time most needed. If from 3 to 4 grams of glucose are given per unit of insulin there should be no difficulty from hypoglycemia in carefully watched patients.

Combined with warmth, fluids, and all the usual procedures for the avoidance of shock and ketosis, the use of insulin with glucose would seem to be a most valuable procedure in surgery and a form of treatment that merits more extended investigation.

DOCTOR ANDERSON (closing)—I believe Doctor West refers to some recent work being done in London under the direction of one of the discoverers of insulin that may seem to throw some doubt upon the original, and I might say universally accepted, theory relative to the oxidative function of insulin. In other words, a question has been raised as to whether insulin does actually assist in the burning of carbohydrate. Such work if confirmed will, of course, necessitate a complete revision of all former writings on the subject of insulin action. Undoubtedly such evidence will be very closely scrutinized and debated before accepted. I think my paper tends to strengthen the argument in favor of the generally accepted rôle of insulin in carbohydrate metabolism.

Doctor West's suggestion to give the glucose and insulin nearer to the time of operation would seem reasonable and may be worthy of trial. We have considered it and tried it in a very few emergency cases, but prefer our method for the following reasons:

1. We first developed the method through an attempt to combat preoperative acidosis in cases of what might be termed acute starvation and more or less accidentally discovered that we were preventing shock. This class of cases presents quite a percentage of the total number of surgical cases, and is I think without doubt better treated for a longer time preoperatively in order to be sure and have the existing acidosis cleared up before operation begins. The results have been so gratifying in these cases that we hesitate to make any change in any kind of a case.

2. We fear the insulin reaction coming on unrecognized while the patient is under ether. Banting states that one unit of insulin may utilize as much as 5 grams of sugar in certain individuals, while we know that in other individuals it may only utilize about 1 gram. We do not like to give enough glucose to surely buffer the insulin for fear the hyperglycemia may lower the resistance to infection. There is considerable evidence in the literature that such is the case.

3. The same group of workers who showed that insulin had a glycogenic function showed that this function was destroyed by the use of atropin, as this blocks the parasympathetic nervous system. We use morphin and atropin almost routinely preoperatively, and this would of course seriously interfere with insulin given a few hours before operation. Furthermore, Lincoln F. Sise and Albert A. Homer of Laney's Clinic, Boston, tried injection of 10 units of insulin postoperatively in a small series of cases and concluded that "the postoperative

administration of 10 units of insulin subcutaneously has no favorable influence on recovery from operation and etherization" (*American Journal of Surgery*, October, 1925, p. 250).

I think their unfavorable report is undoubtedly due to drug interference with the insulin action.

4. I think giving the glucose so close to the operation would preclude its use by mouth, which I think is quite an advantage.

Some work that I have witnessed with glucose and insulin in cardiacs leads me to believe that Doctor Terry's suggestion with reference to the support of the heart is an important factor in these cases.

UNDULANT FEVER*

By JOHN C. RUDDOCK, M. D.
Los Angeles

DISCUSSION by Karl F. Meyer, Ph. D., San Francisco;
Verne R. Mason, M. D., Los Angeles; C. W. Bonyngue,
M. D., Los Angeles.

UNDULANT fever, usually known as Malta fever, has been known in epidemic form for a long time.

As the name Malta fever suggests, the disease is prevalent in Mediterranean countries with endemic foci in India, Africa, China, and Manila.

The greater part of our knowledge of this remarkable disease we owe to the work of the British army surgeons stationed at Gibraltar and Malta, particularly Marston, Bruce, and Hughes. In 1886 Bruce isolated an organism which he called *Micrococcus melitensis* from the spleen and blood of patients suffering from this disease. In 1904-05 a commission appointed by the British Government to study the disease on the island of Malta reported it to be a septicemia due to the *Micrococcus melitensis* and that 10 to 15 per cent of goats on the island had this organism in their milk, and that monkeys when fed this milk developed Malta fever. Following this report goats' milk for the troops on the island was stopped, and the cases of Malta fever dropped from 750 cases in 1905, to none in 1907 and has disappeared from the garrison since this date.

Holt and Reynolds called attention to the prevalence of the disease along the Mexican border. They concluded that Malta fever had existed in Texas for about forty years, in Arizona for at least fifteen years, and in New Mexico for a considerable time; the exact date of its appearance there not being determined. They also concluded that along the entire Mexican border of Texas, Arizona, and New Mexico, Malta fever should be suspected in any case of long-continued fever unless a diagnosis of some other condition could be definitely made.

Until five years ago all cases of undulant fever in this country were thought to be the same disease as that prevalent in the Mediterranean countries and due to infected goats' milk, but this was disproved when Keefer reported a case of undulant fever in the Johns Hopkins Hospital due to *Bacillus abortus*, and later corroborated by Evans, who isolated the same organism from several cases in an outbreak of undulant fever in the Southwestern

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* Read before the General Medicine Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927.

United States. It had been evident in these outbreaks that drinking goats' milk had not entered into the development of the epidemic.

A long series of experiments has now been completed by Evans, Meyer, and others, proving beyond the shadow of a doubt that *Brucella melitensis*, the cause of Malta fever, and *Brucella abortus*, which is the causal organism of endemic abortion of cattle and hogs, are closely related organisms. Evans and Meyer, classified this group of organisms, and have succeeded in growing many strains which have a varied pathogenicity to human beings. In order to correlate the knowledge of this disease, Meyer and Shaw proposed that the entire group be named *Brucella*, in honor of Doctor Bruce, who isolated *melitensis* in 1886. This name has been generally adopted, and these organisms are known in the literature as *Brucella melitensis* and *Brucella abortus*.

GEOGRAPHICAL CLASSIFICATION (Evans)

Variety	Host	Where Isolated
<i>Brucella</i> var. unknown	hogs	United States
<i>Brucella</i> var. unknown	cattle	Germany
<i>Brucella abortus</i>	cattle, hogs, and humans	United States, Holland, Switzerland
<i>Brucella</i> var. unknown	cattle	United States
<i>Brucella para-abortus</i>	goats and humans	Sicily and Tunisia
<i>Brucella melitensis</i> A	cattle and humans	United States (Arizona and Texas) England
<i>Brucella melitensis</i> B	goats and humans	Malta and Tunisia
<i>Brucella para-melitensis</i>	goats and humans	Malta and Tunisia

Bacteriologically, any classification can only be made by means of the agglutinin absorption tests as the cultural characteristics are all identical.

It is now an established fact that *Brucella melitensis* var. *abortus* may infect man, and also that this same organism causes contagious abortion of cattle and other domestic animals.

The human infections contracted from cattle or hogs are indistinguishable clinically from those prevalent in Mediterranean countries and known as Malta fever.

Evans reported twenty cases of infection in the United States by the *abortus* variety of *Brucella melitensis*; sixteen of these were proved by blood culture, and all of them gave agglutination titers over 1:320.

No case can be considered proved unless the agglutinin absorption tests are carried out because of the cross agglutination among the various strains of the *Brucella* group and with the causative organism of tularemia.

It is to be noted that the majority of the reported cases of *Brucella abortus* infection which have been recognized in this country were found by a few observers, who, having had their attention directed to the disease by the recognition of one case, were able to find other cases by looking for them.

Human *abortus* infections have also been reported from other countries. Bevan reports thirty-five cases

from South Africa due to *Brucella abortus* in 1925. Several series of outbreaks of *abortus* infections have occurred in Italy since 1925, numbering in all about fifty cases. Auchie gives a statistical table showing the alarming presence of *abortus* fever in France. From 1920-24, 952 cases; 585 of which were confirmed by laboratory methods, and up to May, 1924, 338 cases, and he thinks there may be a great many more.

SYMPTOMS

There is no specific fever which presents the same group of remarkable phenomena. The incubation period is from six to fourteen days followed by a gradual onset of symptoms. The patient usually continues at work although fever is present. The temperature gradually rises and the clinical symptoms are much the same as found in typhoid fever (lassitude, malaise, loss of appetite, and headache). After a few days the patient complains of pains in the limbs, back, and neck, which are rheumatic in character, accompanied by a slight sore throat which, upon examination, appears reddened and inflamed.

The fever, which is the outstanding manifestation and which gives the disease its name, is remarkable. It has a peculiar irregular curve consisting of intermittent waves or undulations of a distinctly remittent type lasting from three months, the average time, to two years. The undulations may be separated by apyrexial periods of varying lengths, so that relapses are common. The spleen and liver are enlarged and sometimes painful. This enlargement does not occur immediately, but after two or three weeks of illness.

Perspiration of a peculiarly disagreeable odor, profuse in character, associated with chilly feeling occurs from the beginning of the disease. Severe chills, however, are uncommon.

Neurasthenia and nervous symptoms are common. Delirium is rare.

Acute arthritis may be present with enlarged reddened joints which sometimes go on to suppuration. The arthritis is usually of the wandering type. Orchitis and oophoritis are frequently associated symptoms of the disease.

Glandular involvement is exceedingly rare.

Crops of peculiar small petechiae appear at irregular intervals around the extremities and body. These have a red periphery with a small white center resembling insect bites, and often itch.

Aside from a relative secondary anemia and leucopenia the laboratory findings are negative. The organism may be grown from the blood and urine, but does not grow until five to ten days after inoculation of the media.

Agglutination by the patient's serum of the specific organism will lead to a positive diagnosis.

DIFFERENTIAL DIAGNOSIS

The diseases with which undulant fever is most apt to be confused are malaria, particularly the aestivo-autumnal type, acute rheumatism, bacterial endocarditis, typhoid fever, tuberculosis, certain types of leukemia and tularemia.

CASE REPORT

Mrs. F., age 35 years, a young mother of three and one-half months with a nursing baby, who had been drinking,

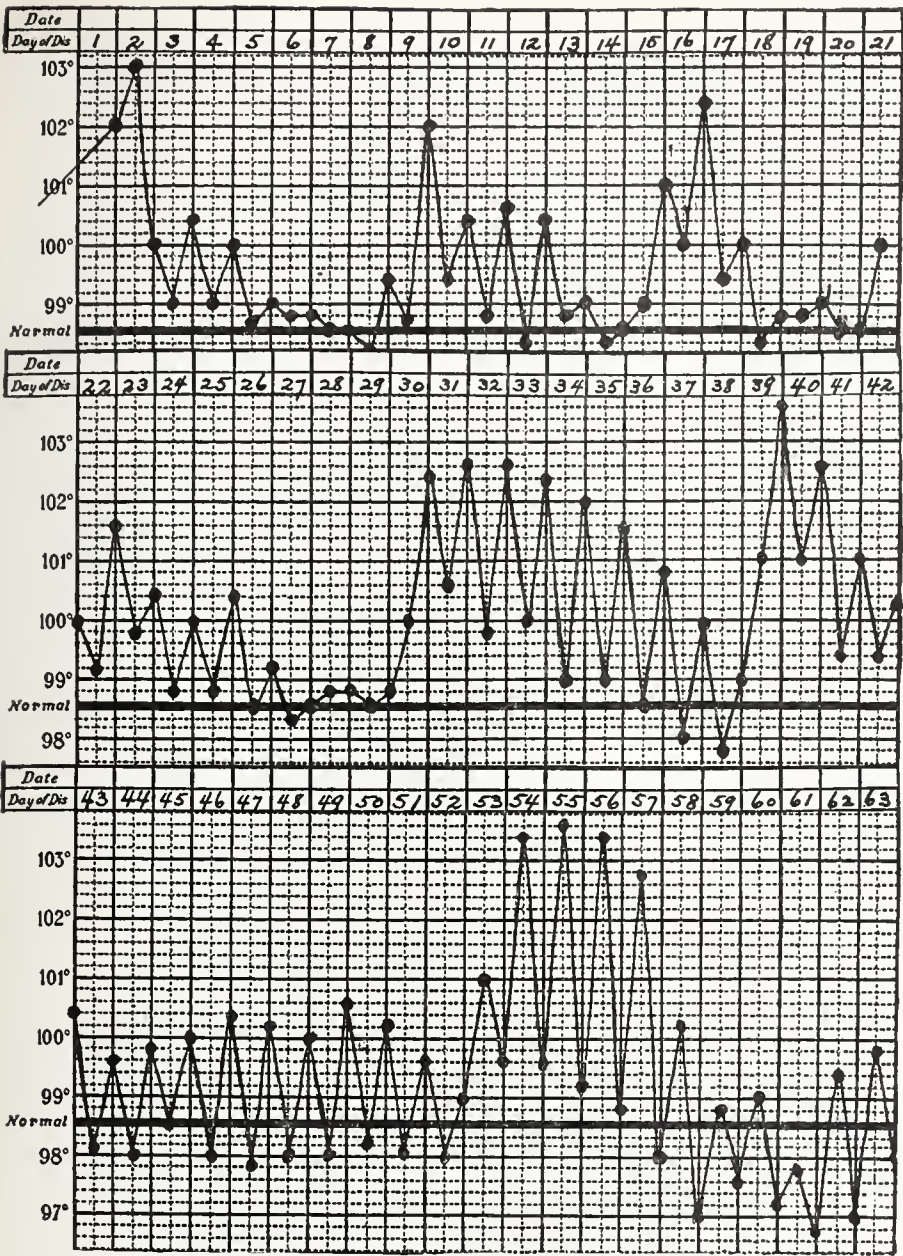


Plate 1—Undulant fever (first nine weeks). Case, Mrs. F. Note the undulations occurring throughout the chart with remittent type of fever

agar plates; all negative. Blood count: red blood cells, 4,500,000; white blood cells, 3500; hemoglobin, 70 per cent. Differential count: normal. No malaria. Stool examination: negative. X-ray of gall bladder and chest showed no evidence of disease. Agglutination tests: negative for tularemia; *abortus* variety of *Brucella melitensis* positive 1:1280.

TREATMENT

To date there is no specific remedy for this fever, although many forms of treatment have been tried.

No drugs appear to have any special influence on the fever, although quinin, as given for malaria, should be tried.

Vaccines have been used many times without satisfactory results.

Serums from convalescent patients and autogenous serums made during the apyrexial periods have given practically no results.

General measures suitable for typhoid fever are indicated, such as liquid diet during the febrile period, hydrotherapy for temperature above 103 degrees Fahrenheit, symptomatic therapy, and careful nursing care.

Inasmuch as this disease is a general bacteremia or infection of the blood stream, the various blood antiseptics might be perhaps the treatment of choice, such as acriflavine, acriviolet, gentian violet, mercurochrome, etc. Acriflavine probably is the one of choice. This, however, is only conjecture, as there have been too few cases as yet treated by this method in order to arrive at any conclusion.

PROGNOSIS

The disease is usually self-limited with an average case duration of 120 days, although it may last for about two years. The mortality rate is approximately 2 per cent.

COMMENT

Although the case reported became apparently well after the administration of quinin, this may have been merely a coincidence, as the drug might have been given at the time the patient would naturally convalesce. However, this therapy merely served to further confuse the ultimate diagnosis, because it was then thought that we were dealing with an atypical instance of aestivo-autumnal malaria.

The presence of the irregular type of temperature with a rough systolic murmur over the pulmonic area, which was not present previous to the birth of the baby, two and one-half months before, ushered in with a sore throat, an enlarged spleen,

since the birth of her baby, about one and one-half quarts of raw milk per day from a small Grade A dairy.

She became sick on January 4, 1927, with a slight sore throat, chill, and menstrual flow (the first since the birth of the child) and a period of fever. The fever and menses lasted about four days. From this time until the middle of March the patient had periods of fever ranging from 100 to 104 degrees Fahrenheit lasting three to five days. During the attacks of fever the patient had a moderate menstrual flow.

During the fever chilly feelings were markedly evident associated with constipation and an irritable introspective mentality. There was a loss of appetite with corresponding loss of weight and strength, and drenching sweats of a peculiar odor. A diagnosis of miliary tuberculosis was made at this time.

Physical Examination—The patient did not look ill. Tongue: clean. Fundi: normal. Lungs: clear. Heart: normal in size, with a rough systolic murmur heard over the pulmonic area. Liver edge: two fingers below costal margin: Spleen: enlarged four times, not tender. Abdomen: soft and not distended. No glandular enlargement. No joint tenderness. Reflexes: normal. Crops of peculiar petechiae following fever periods which resembled insect bites. Pulse: average 80. Blood pressure: systolic, 110 mm.; diastolic, 65 mm. Pelvic examination: normal. Rectal examination: negative. No phlebitis. Urine: normal. Catheterized specimens: negative. Widal: negative. Wassermann: negative. Blood cultures: twelve blood

and crops of petechiae, confused the picture with malignant endocarditis.

The lassitude, loss of appetite, fever, drenching sweats confused the picture with miliary tuberculosis.

The recent delivery of a baby brought to mind pelvic inflammation and bladder and kidney infection.

Negative widal tests after two months of illness positively ruled out the entire typhoid group.

This differential diagnosis is given here to emphasize the importance of a *proved diagnosis* in any case of long-continued fever.

It is of interest to note that this patient nursed a baby for the first five weeks of her illness. The baby, however, did not contract the disease and suffered no untoward effects. This is a rather remarkable coincidence, as the disease is a milk-born infection.

CONCLUSION

All strains of *Brucella abortus* are not pathogenic to human beings, but only those strains that tend to have a *melitensis* variation.

It is of the utmost economic importance that the origin of the pathogenic strains of *Brucella abortus* be isolated and their habitat be definitely known, because it is known that a certain percentage of milk cows are infected and give abortus-infected milk.

Any case of long-continued fever with sweats, enlarged spleen and leukopenia, in which a proved diagnosis cannot be made should be suspected as an *abortus* infection.

The report of this case brings this type of infection to our attention, and should result in the finding of more cases.

1002 Pacific Mutual Building.

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DISCUSSION

KARL F. MEYER, Ph. D. (Hooper Foundation for Medical Research, Second and Parnassus Avenues, San Francisco)—During the latter part of the month of January, 1927, the Hooper Foundation was requested to examine a specimen of blood serum secured from a patient, Doctor B., living at Morenci, Arizona. The serological study indicated an infection with *B. melitensis* var. *melitensis*. Two blood cultures, which were subsequently forwarded, confirmed the diagnosis of undulant fever due to the *melitensis* variety. Early in March another specimen of serum was forwarded by Doctor Ruddock of Los Angeles (the case reported in the preceding paper). It reacted with the same bacteria, but the absorption test suggested an infection with the *abortus* variety of the *Brucella* group. This case aroused interest in southern California. Several physicians sent blood cultures and serums. In the course of the last eight weeks the laboratory has tested seventeen serums and encountered five specimens which gave definite agglutinin absorption reactions with the *abortus* variety. The patients who furnished the specimens were clinically cases of undulant fever. One of the cases was confirmed by a positive blood culture. A final identification of this culture requires additional work. Comparative studies thus far completed indicate that it is not a true *melitensis* (probably a para-*abortus*). It is unfortunate that the other four cases were only recognized late in the course of the disease or at the beginning of the convalescence. Repeated blood and urine cultures have remained negative. However, of considerable interest is the fact that all the patients (with one exception) deny any contact with undulant fever patients, goats or goats' milk products. On the other hand it is claimed by all that they had consumed during the last six or eight months large amounts of raw cows' milk. An attempt was made to determine the sources of the milk supply, and just as many dairies as there are patients were found to have furnished the raw milk. A number of investigations are now in progress, since it appears of the greatest importance to establish, if in any way possible, the source of the *abortus* infections.

In this connection it should be recalled that comparative serological studies conducted since 1918 by a number

of workers lead to the conclusion that a clinical complex similar to Malta or undulant fever may be produced in man by the bovine *abortus* variety of the *Brucella* group. Although the existence of such cases, in the light of the findings made by Miss Evans, Keefer, Knowlton, Carpenter, Huddleson and others, cannot be denied, the following facts should be kept in mind:

1. Undulant fever cases due to the *Brucella* organisms which cannot be distinguished serologically from the organisms responsible for bovine abortion are medical curiosities, irrespective of the fact that *abortus* disease is widely distributed and exceedingly common.

2. The bovine *abortus* variety is not highly contagious for man. Laboratory infections have not as yet been reported.

3. Volunteers inoculated with the bovine *abortus* variety by Burnet and Conseil did not become infected.

4. The conditions under which infections with the *abortus* variety have occurred are unknown; they are unquestionably unusual.

5. Theobald Smith has shown that the human strains of the *abortus* variety behave in guinea-pigs like those of the porcine types of the *abortus* variety. Furthermore, biochemical studies recently reported by Rettger indicate that the porcine strains of *Br. melitensis* var. *abortus* resemble more closely the true *melitensis* strains than the bovine *abortus* varieties. However, it is generally recognized that it is impossible to separate by agglutination tests the porcine from the bovine types.

With this information now available the question arises, are the undulant fever cases which are serologically or culturally associated with the *Br. abortus* infections due to the *abortus* variety of bovine or of porcine origin? No final answer can be given. Attention must be called to the possible contamination of other foodstuffs than milk by porcine *abortus* strains. Furthermore, until it is definitely proven that the porcine strains remain confined to their original host, the swine, and that they cannot become accidentally lodged in the udders of cows, it will be impossible to speculate as to the danger of undulant fever infections from raw cows' milk. Then, again, in southern California there is always a remote possibility, since goat raising is practiced rather extensively and an exchange of animals occurs between Arizona and the state, that the caprine types of the *melitensis* variety may localize in the udders of cows. It is perfectly evident that the solution of the problem of the pathogenicity of the *Br. abortus* for man in California is much more difficult than, for example, in a northern state. It deserves careful and prolonged investigation before analogy deductions are drawn.

A tentative diagnosis of undulant fever due to the *abortus* variety of the *Brucella* group can be made with the aid of the serum agglutination tests. However, for further epidemiological studies the isolation of the suspected bacteria is imperative, and every possible effort should be made to secure blood or urine cultures early in the course of the infection. For the blood cultures the use of the Keidel tubes is highly recommended. The George Williams Hooper Foundation for Medical Research, Second and Parnassus avenues, San Francisco, will examine and study, free of charge, any blood serum cultures, etc., which may be sent. Since in two instances the use of vaccines has apparently shortened the course of the disease, the institution is prepared to furnish autogenous preparations for the treatment of the properly diagnosed cases.

VERNE R. MASON, M. D. (523 West Sixth Street, Los Angeles)—This case is interesting to the clinician as one of the more unusual types of long-continued fever. Although more than twenty instances of *Brucella abortus* infection in man have been reported in the United States and many others may have gone unrecognized, it seems improbable that the disease is of any considerable frequency. The clinical features are such that an internist might easily recall such puzzling cases in his past experience, and on this basis I believe the disease to be rare.

The fascinating immunological studies of Alice Evans on the *abortus-melitensis* group make us hope for equally interesting epidemiological studies. For this purpose it is necessary that organisms of this group be sent for study

to those whose facilities are adequate. By this method rules for protection from the disease may be formulated.

C. W. BONYNGE, M. D. (617 Westlake Professional Building, Los Angeles)—Doctor Meyer has brought out the fact that our present knowledge of bacteriology is inadequate to definitely solve the problem of *Brucella* infection in man. With the usual serological tests one would seem justified in forming the conclusion that *B. abortus*, as it exists in the cow, is infectious to man and that milk is a source of danger. This position has been taken by some few workers.

When the matter is considered carefully, however, there are many facts that do not agree with this laboratory conclusion,* and make the above bold stand rather risky.

If raw milk is a source of some of our undulant fever, the dairy industry should adjust itself accordingly. Proof of this danger has not been brought forth as yet.

HAY FEVER IN NEVADA*

By HENRY ALBERT, M. D., AND VIRGINIA DEBELL, M. D.
Reno, Nevada

DISCUSSION by Albert H. Rowe, M. D., Oakland.

NEVADA has been generously supplied with hay-fever plants, and the victims are proportionately numerous. Indeed hay fever is one of the real health problems of the state.

Practically all of the plants responsible for producing hay fever belong to the wind-pollinated group as distinguished from the insect-pollinated plants. Plants depending upon insect life for fertilization have, as a rule, either brightly colored, conspicuous flowers or secrete a nectar in the heart of the flower to attract the insect, or both. Wind-pollinated plants, however, have no need of these inducements. The flowers, which often go unnoticed, are small and inconspicuous, with a structure such that the stamens project from the main portion of the flower. This gives the wind ample opportunity for scattering the small, dry pollen grains which are generally produced in great abundance.

It is now quite generally known that the insect-pollinated flowers are not important offenders in the production of hay-fever symptoms. However, the layman often has suggestions to offer in his belief that his hay fever is caused by alfalfa, roses, or goldenrod, which may sometimes be responsible when the flower is brought in contact with the nose. While it is sometimes difficult to collect sufficient pollen from the wind-pollinated plants, it is very much more difficult to collect pollen from those plants relying upon insects. The pollen is often very securely hidden, small in quantity, and sticky in nature. With this combination of factors it is almost impossible to make a satisfactory pollen extract from alfalfa and many other insect-pollinated plants.

In making pollen extracts for hay-fever tests, the plants are placed in water in the laboratory on waxed paper or clean plate glass. They are shaken daily and the pollen collected. Impurities are then removed by sifting the pollen through a fine screen, and the pollen extracted in glycerine and Cocoa's fluid. After tests for sterility the extract is appropriately diluted and is then ready for use, both for testing and for treatment.

The tests for susceptibility consist of making small skin scratches, and the application to such of a small

* From the State Hygienic Laboratory, University of Nevada, Reno, Nevada.

HAY-FEVER PLANTS OF NEVADA ARRANGED ACCORDING TO THE FREQUENCY OF POSITIVE REACTIONS

(Based on tabulations of thirty-one complete tests made at the State Hygienic Laboratory, U. of N., Reno, Nevada.)

Plant	Family ²	1+	2+	3+	Total	Season
Russian Thistle.....	(C)	4	13	4	21	July-October
Annual Salt Bush.....	(C)	8	8	4	20	July-September
Shad Scale.....	(C)	6	9	5	20	March-June
Lamb's Quarter.....	(C)	14	5		19	July-October
Careless Weed.....	(A)	6	9	4	19	August-October
Red Root Pigweed.....	(A)	7	10	1	18	August-October
Wild Oats.....	(G)	10	2	4	16	April-June
Orchard Grass.....	(G)	8	7	1	16	June-July
Canary Grass.....	(G)	10	4	1	15	June-July
Red Top Grass.....	(G)	8	5	2	15	June-September
Rye Grass.....	(G)	4	7	4	15	July-August
Johnson Grass.....	(G)	12	1		13	April-October
Bermuda Grass.....	(G)	11	2		13	May-October
June Grass.....	(G)	10	3		13	June-July
Velvet Grass.....	(G)	7	2	4	13	June-July
Timothy.....	(G)	7	3	2	12	June-July
Mugwort.....	(W)	8	3		11	August-October
Coast Sage.....	(W)	6	4	1	11	August-October
Ash.....		8	2		10	April-May
Olive.....		9	1		10	April-May
Black Walnut.....		6	2		8	April-May
Ragweed (False).....	(R)	5	2		7	August-October
Marsh Elder.....	(R)	7			7	August-September
Cocklebur.....	(R)	5	2		7	August-October
Ragweed (Western).....	(R)	5	1		6	August-October
Mountain Sage.....	(W)	2	2	1	5	August-October
Cottonwood.....		3	2		5	February-April
Rabbit Bush.....		5			5	April-May
Yellow Dock.....	(D)	4			4	May-June
Ragweed (Giant).....	(R)	4			4	August-October
Ragweed (Common).....	(R)	1	1	1	3	August-October
Live Oak.....		3			3	April-May
Plantain.....	(P)	2			2	June-July
White Oak.....		1			1	April-May
Sheep Sorrel.....	(D)	1			1	May-June

² Family References:

- A—Amaranth.
- C—Chenopods.
- D—Docks.
- G—Grasses.
- P—Plantains.
- R—Ragweeds.
- W—Wormwoods.

quantity of the pollen extract. Pollen may also be placed directly on the scratch mark and a small drop of a one-tenth normal sodium hydrate solution added. Absorption occurs rapidly. The reading is made in half an hour. Positive reactions indicating susceptibility are indicated by edematous swelling accompanied as a rule by redness and itching. The swelling disappears within a few hours.

Treatment consists of hypodermic injections of the pollen extract. It is better for prevention than cure. It is most effective when started about six weeks before the expected attack.

During the spring and summer of 1926, thirty-one hay-fever patients were each tested with about forty different pollen extracts.¹

The table above lists the plants, the pollen extracts of which were used for the tests.

The plants are listed in the order of frequency of positive reactions obtained. The family to which the plant belongs; the number of positive reactions both total and the number of slight (1 +), moderate (2 +), and severe (3 +) reactions obtained and season of pollination are also included in the table.

It will be noticed that the chenopods and the

1. The pollen extracts were chiefly supplied by The Cutter Laboratory, Berkeley, California.

grasses are the most important groups in and around Reno. Russian thistle, a chenopod, leads the list as the most frequent cause of hay fever in this vicinity. Twenty-one of the thirty-one persons tested reacted to it. Other important plants are shad scale, red root pigweed, wild oats, and rye grass.

Russian thistle is found growing almost everywhere along the roads and in the fields, blooming from July to October, and producing a large quantity of light, dry pollen. Rye grass is a very good illustration of the grasses. It blooms from June to August and is very common along the roads and in vacant lots and, like Russian thistle, produces a large amount of pollen.

The four important members of the chenopods are Russian thistle, shad scale, annual salt bush, and lamb's quarter. With only one exception, in all the tests we have made, a person reacting to one of these reacts in some degree to them all. It is interesting to note that the four members of the chenopods head the list in producing hay fever, closely followed by the two amaranths—careless weed and red root pigweed.

The grasses are next in importance, taking each genus separately. When considering the grasses as a whole, however, they form the most important group because of the large number of plants repre-

sented. With the grasses we obtained 142 positive reactions as compared with eighty positive reactions with the chenopods and thirty-seven with the amarantths.

Each of our hay-fever grasses belongs to a separate genus, but when we get a positive reaction to one grass we also get positive reactions to most of the others. It is a question whether treatment with one grass will immunize against the remainder.

According to our data, the grasses are responsible for a little more than one-third and the chenopods almost one-fourth of our positive reactions. When, however, only the more marked positive reactions are considered, we find the chenopods and grasses to be of about equal importance in spite of the large number of the latter. Each group is probably responsible for about one-third of all our cases of hay fever.

A number of the plants which are very common in Nevada, such as sagebrush, rabbit brush, and cottonwood, fortunately are responsible for very little hay fever. Occasionally a reaction is obtained with one of these, but it is usually only slightly positive. These plants seem to be of very minor importance as causes of hay fever.

REACTIONS FREQUENTLY MULTIPLE

Many patients react to more than one pollen. The following table shows the number of decided (2 + or 3 +) reactions obtained in thirty persons tested:

Number of Persons	Number of Pollens to Which Reacted
Two	1
Two	2
Four	3
Three	4
Eight	5
Two	6
Two	7
Three	9
One	10
One	11
One	12
One	16

It will be noticed that only two persons reacted to only one pollen and that one reacted to as many as sixteen. One-half of all persons tested reacted to from three to five pollens.

Multiple reactions seem to be more common in Nevada than elsewhere. It brings up the question of multiple extracts for immunization. Such seems to be distinctly advisable in a great many patients. It would seem advisable, however, to try to limit the number of kinds of pollen extracts for treatment to three. One person who reacted to ten pollens obtained complete relief when treated with three. The person who reacted to sixteen pollens was treated with a mixture of three spring pollen extracts, and later with a mixture of three fall ones. He also had complete freedom from symptoms although he had had severe attacks of hay fever lasting for about two and one-half months each year for the past seventeen years.

The kinds of pollen extracts that should be used depend upon: (1) degree of reaction; (2) prevalence in the vicinity of plants to the pollen extracts

of which patient reacts; (3) time of pollination as compared with time of hay fever; and (4) group to which the several reactors belong.

A member of one group tends to protect more or less against the other members of the same group. Thus in case a person reacts to more than three pollens it seems advisable to select one of each of the main plant groups represented by the positive reactions.

RESULTS OF TREATMENT

The results of the preventive treatment of hay fever by means of the appropriate pollen extracts have been very encouraging. A report was obtained from the physicians in charge of seventeen persons whom we had tested. Of that number five report complete relief from symptoms. All of the remainder were given considerable relief. In one it was only 25 per cent; in four, from 50 to 60 per cent; and in seven, from 75 to 90 per cent.

Some of the patients did not begin treatment until after symptoms of the disease had made their appearance. This may account for some of the less favorable results.

The really important problem is to try out a much larger number of Nevada plants as to their causal relationship to hay fever. This will require a large amount of work, but the results should readily justify the efforts and expense. When such has been done and a state-wide survey of the important plants has been made, we may expect to obtain very much more satisfactory results in the treatment of hay fever in Nevada than has been thus far possible.

DISCUSSION

ALBERT H. ROWE, M. D. (242 Moss Avenue, Oakland)—The choice of the pollens to be used in the treatment of a patient with hay fever is most important. This has received emphasis in Doctor Albert's paper. For the best results, he has stated that the physician must be acquainted with the botanical flora of the district in which the patient lives. The flora within a radius of several miles, especially in the directions from which prevalent winds blow, must be thoroughly studied, since light pollen can be carried by the wind for fifteen or twenty miles. The relative amounts of the various wind-pollinated grasses, shrubs, weeds, and trees, must be carefully determined, and the seasons and duration of pollination must be known. With such information at hand, one can decide from the history of onset and the duration of the hay fever, and from a record of the pollen reactions, which pollens should be used for desensitization.

We must assume that treatment with a given pollen will desensitize the patient to closely related pollens. However, it is difficult to be sure how specific such pollen desensitization is. I feel that for the best results desensitization must be quite specific and if necessary two or three antigens should be administered at the same time, each containing three or even four pollens. It is especially important to decide which grass pollens should be used for treatment of an individual who is clinically sensitive and who gives reactions to a large number of such pollens. The best plan is to take representatives of the various grass tribes, using specific pollens to which reactions have been obtained, and which are most prevalent in the patient's environment. I am satisfied that one grass pollen does not desensitize satisfactorily to all pollens in the grass family. The study of pollen plates for an entire season in a given district gives a numerical count of the pollens in the air and the limits of seasons of pollination which is most valuable to the allergist. When Albert has had the opportunity to study the flora of Nevada more exhaustively and has collected, through

local botanists, a complete group of the pollens of Nevada, his further reports will be of great interest.

The physician must watch the result of treatment carefully to obtain the best results. It is often advisable to continue treatment at weekly intervals during the season when the treatment has been preseasonal. When treatment is begun during the season, doses must be increased as rapidly as the local reaction allows. Thus in seasonal treatment the desensitizing dose can be reached within a comparatively few days, making co-seasonal treatment well worth while. The intradermal administration of pollen, as suggested by Phillips, promises to be of definite value in the rapid control of hay fever symptoms.

Whereas seasonal hay fever is nearly always due to pollen, such symptoms may be due to animal emanation proteins, orris root, various dusts, or even to seasonal foods. Where these are not the primary causes they may be complicating factors which should be recognized in the treatment of the hay fever problem. This emphasizes the fact that for proper control of patients with hay fever resistant to pollen therapy, especially if there is a history of mild symptoms throughout the year, other types of proteins than pollen should be used in testing the patient. This applies, of course, to the unusual case, but mention is made of these other causes to round out this consideration of hay fever.

NITROUS-OXIDE-OXYGEN ANESTHESIA OF CHILDREN*

REPORT OF TWO HUNDRED ANESTHETIZATIONS OF
CHILDREN UNDER 10 YEARS OF AGE

By DOROTHY A. WOOD, M. D.
San Francisco

IT was formerly held by anesthetists and surgeons in general that children could not be given nitrous-oxide-oxygen as an anesthetic agent. It was conceded that children from 7 to 10 might have a nitrous-oxide induction to an ether anesthesia, but that children under 7 must be given a straight ether narcosis with perhaps the use of oil of orange to mask the odor in the early conscious period. There seemed to be two main objections to the use of nitrous-oxide-oxygen. First that the task of breathing through valves in a closed mechanical apparatus was too great for the weak respiratory systems of young children. That the tidal volume of air for each respiration was too small to reach back to the supply with the closed apparatus and therefore nitrous-oxide-oxygen should not be given until the respiratory organs were developed enough to exhale a tidal volume of 300-400 cc. or, according to Gwathmey, until the child has reached the age of 10 or 12. The other reason seems to be that the plane of anesthesia in children is a very narrow one and that a smooth, even narcosis is difficult to maintain. A very slight change in the mixture takes the patient from too light to too deep narcosis. Very frequently children have little or no color, and where the anesthesia is so dependent on color changes there is no reliable gauge to the child's condition and anoxemia or asphyxia may too easily be mistaken for anesthesia.

Of recent years, however, the age limit for the use of gas has been gradually lowered until now, in most hospitals, it is being used to induce ether anesthetics from 3 to 4 years up, while many hospitals are using nitrous-oxide-oxygen anesthesia for

young children. Doctor McCurdy uses nitrous-oxide for children of 6 months. Doctor McKesson uses gas from ten days, and feels that age has no influence at all in the selection of an anesthetic. Except for great care in securing the proper equation of gases, he does not think the technique differs from that in anesthetizing adults. In 1923 Doctor Botsford reported thirty cases under 4 years of age operated with nitrous-oxide-oxygen anesthesia. She feels that nitrous-oxide with sufficient oxygen to prevent cyanosis should be the anesthetic of choice for all operations where ether is contraindicated, and may be safely administered to infants, especially where further anesthetizations are necessary within short intervals of time.

The advantages of nitrous-oxide-oxygen over ether need not be enumerated. Suffice to say that nitrous-oxide-oxygen is to be preferred in respiratory tract infections to reduce the danger of postoperative pneumonia; in tuberculosis, to prevent dissemination of the disease; in high fevers and diabetes, to prevent acidosis; in nephritis and pyelitis, to prevent further kidney damage, and in mastoids with the usual attendant acute pharyngeal conditions to lessen the danger of postoperative lung complications.

It is with some temerity that I offer so limited a series of cases, realizing fully that there are many children's hospitals in the country which could show a much larger series, but a survey of the literature fails to find them reported. In a general hospital relatively few children are operated upon, and this report is limited to personal experience.

There were no fatalities in the series and only one near fatality, a baby of 2 years who developed a cervical adenitis following a mastoidectomy. The baby was successfully anesthetized with nitrous-oxide-oxygen for the mastoid, and no difficulty was anticipated with the second anesthetic when it became necessary to drain the abscess in the neck. However, the patient was very pale and apparently was given a too high percentage of nitrous-oxide. He stopped breathing, pupils were dilated, and all means of resuscitation, such as oxygen under pressure, artificial respiration and dilatation of the rectum, seemed to have failed, when the child of his own accord finally took a breath. Having once started, he continued and was able to leave the hospital in good condition. This experience taught us to err on the side of too light rather than too deep a concentration of nitrous oxide.

CLASSIFICATION OF CASES

One hundred and eleven of the patients were anesthetized for some genitourinary condition such as cystoscopies, pyelitis, or congenital malformation of the urinary tract where it was particularly desired that no ether be given. Ninety of these were for cystoscopic examinations that took from fifteen minutes to over an hour. A very light anesthesia usually is sufficient for these after the cystoscope has been inserted and the bladder has been distended with fluid. The remaining twenty-one were for longer truly operative procedures such as nephrectomies, ureteroenterostomies and plastic operations for epispadias, etc.

Fifty-one of the two hundred were for orthopedic

* Chairman's address, Section on Anesthesiology, read before the California Medical Association at the Fifty-Sixth Annual Session, April 25-28, 1927.

conditions. Many of these were on tuberculous subjects, and ether was therefore contraindicated.

Twenty-seven were general surgical cases; about half this number were appendectomies. The remainder were mainly hernias, drainage of abscesses and suturing of cuts, lacerations, etc. One was a thyroidectomy in a girl of 10 with anesthesia lasting two hours. One anesthetic was given to a child of 3, using an unreliable gas machine in an out-of-town hospital, for an appendectomy complicated by severe bronchitis.

Eleven were in the nose and throat department. These were all mastoids, and two of the patients were diabetics—one 10 years of age, the other 3. Nitrous-oxide-oxygen has not been used for tonsillectomies, as the dissection method for tonsillectomies is preferred, and fifteen to twenty minutes is rather long for satisfactory use of nitrous-oxide-oxygen when working in the back of the throat.

CLASSIFICATION AS TO AGES

There were eighty-five patients from 6 to 10 years of age, sixty-nine from 3 to 5 years, and forty-six of 2 years or under. The youngest was a baby of 11 months. The anesthetic was given for the radical removal of a sarcomatous kidney. That afternoon the baby was found standing up in her crib, laughing and shaking the crib gate as if nothing serious had happened to her that day.

REPEATED ANESTHETIZATIONS OF SAME CHILDREN

Quite a number of children had chronic trouble which needed repeated treatments. One boy with congenital bladder malformation had seventeen nitrous-oxide-oxygen anesthetizations over a period of two years, beginning when he was 2 years old, lasting until he was 4. One girl of 5 years had ten anesthetics within two months; three of them were for major operations and seven were for cystoscopies. One child of 3 years had nine anesthetics within six months. Another child of 2 years had eight anesthetics in three months. Two 5-year-old girls had five anesthetics each within two months. Four children had four anesthetics each, six had three each, and fourteen had two, while the remaining ones of the two hundred had one each. No untoward effects of repeated anesthetizations were ever noted. The children themselves became rather skeptical of the entire procedure and more reluctant to take the gas, but practically all could be reasoned with and understood that, after all, the gas was their best friend in the process of getting well.

TECHNIQUE OF ADMINISTERING ANESTHETICS

The gas machines employed were either the Ohio Monovalve or the McKesson. The procedure differs not the slightest from that used in administering to adults. In strong vigorous youngsters the induction is with pure nitrous-oxide lasting usually about forty-five seconds; then the mixture of nitrous-oxide-oxygen is given and continued to the end, when pure oxygen is given for about a minute.

In very pale, anemic, weak children the induction is made with a mixture of nitrous oxide and oxygen, the patient never being given pure nitrous oxide or

allowed a too high percentage of nitrous oxide during anesthesia. Here also pure oxygen is given at the close.

Rebreathing and a closed system is used when relaxation is insufficient. Contrary to the old theory that children could not manage an anesthetic with a closed system, no difficulties at all have been found.

CONCLUSIONS

1. Nitrous oxide is the anesthetic of choice, especially in respiratory tract infections, tuberculosis, high fevers, diabetes, kidney pathology, and acute infections of the ear, nose and throat.

2. Children bear nitrous-oxide-oxygen anesthesia as well as adults, and there should be no age limit for its use.

3. Contrary to the old theory, children seem perfectly able to handle a closed system of anesthesia.

4. Technique of administration to children is the same as to adults.

5. Color changes in pale children are difficult to detect, and these children should receive a larger percentage of oxygen in the mixture.

6. No ill effects were noted from repeated anesthetizations of the same subject.

7. Two hundred administrations of nitrous-oxide-oxygen were given without ether, without complications and without a fatality.

1390 Seventh Avenue.

NON-INVERSION OF THE APPENDIX STUMP*

By FRANKLIN I. HARRIS, M. D.
San Francisco

DISCUSSION by Charles G. Levison, M. D., San Francisco; Harold Brunn, M. D., San Francisco; H. A. L. Ryfkogel, M. D., San Francisco.

IT is extremely disturbing to have our attention called to the startling fact that the mortality rate for appendicitis in the United States instead of declining as it should has been steadily increasing during recent years. Willis,¹ who analyzed the reports of the Bureau of Vital Statistics at Washington, concludes that in 1905 the death rate from appendicitis was 11.0 per 100,000, whereas in 1922, the last year for which figures are available, the rate was 14.4, or an increase of 30 per cent.

A disclosure of this nature should cause physicians to study the reasons for this increasing mortality and provide for their elimination. It is the purpose of this paper to review methods of treating the appendix stump as only one particular phase of the surgical technique which is believed to be responsible for a small but very definite percentage of the bad results.

The present methods of treating the appendix stump are mainly three (refer to Figure 1a):

(a) A preliminary ligation of the appendix at its base, its removal and the inversion of the ligated stump by a purse-string suture.

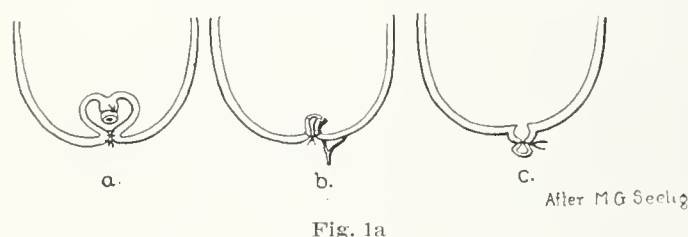
(b) The true inversion method in which, without any previous ligation at its base, the appendix

* Read before the San Francisco County Medical Society, September 21, 1926. From the Surgical Service of Mount Zion Hospital, San Francisco.

is removed, the stump is inverted into the lumen of the cecum and covered over by a purse-string suture.

(c) The non-inversion method consists simply of the ligation of the appendix at its base, its removal and dropping back the cauterized stump into the abdominal cavity. I shall now try to show that theoretically and practically the inversion methods are dangerous and unsurgical procedures.

In the present popular method of treating the appendix stump it is not truly invaginated into the lumen of the cecum, but is buried in the wall of



the cecum. True inversion is impossible, as the appendix has been ligated preliminary to its removal, and upon inversion a possibly infected stump has been buried in a closed cavity in the wall of the cecum. Even if the stump has been thoroughly cauterized and disinfected before its burial in the cecal wall, this method is, nevertheless, dangerous, for inevitably there is an exudate that forms about the necrotic stump. This exudate is bottled up in a cavity, the blood supply of which has been constricted by the inverting purse-string suture, so that the conditions are ideal for an abscess formation. This is not a purely theoretical objection, and occasionally a fatal outcome results from just this occurrence. The following case, which I found in reviewing the deaths from appendicitis in Mount Zion Hospital during the last four years, is cited to support this contention.

H. L., boy, aet 16, entered Mount Zion Hospital, January 5, 1922. Diagnosis, chronic appendicitis. He was operated on that date without any untoward incident. The appendix, after preliminary ligation of its base, was removed by actual cautery. The stump thoroughly cauterized and inverted with a purse-string suture of Pagenstecher by an operator of many years' experience and unquestionable skill. Patient returned to bed, and for two days following operation complained of considerable pain in the region of the incision. On the third postoperative day the patient's temperature started to rise, and from then on until his exodus on the tenth postoperative day he showed a typical clinical picture of spreading peritonitis. The autopsy confirmed this diagnosis of generalized purulent peritonitis, and there was seen in the wall of the cecum a huge abscess cavity in the region of the inverting Pagenstecher suture. There was no question but that the generalized peritonitis had arisen from the rupture of this abscess produced by the buried appendix stump.

It is surprising that this does not happen with greater frequency, but it does happen in a very definite percentage of patients, in many of whom the cause of death is not recognized as being due to this method of treating the appendix stump.

In the so-called true inversion, there is no such danger of cecal abscess, for the stump exudate drains directly into the lumen of the cecum. However, two other serious dangers must be considered here. We must remember that we do not pass a

ligature around the base of the appendix previous to its removal, and the field of operation for that short period of time is in direct communication with the highly contaminated flora of the cecum. Theoretically, at least, it is not good surgery to expose the field deliberately to such a source of infection. But this is not the only nor the most serious objection to the complete inversion method. There is the still greater danger of secondary hemorrhage; for it has been shown that, in a fair percentage of cases, the meso appendix is absent, and the appendicular artery is in the wall and parallel to the long axis of the appendix and is caught only by ligating the appendix as a whole or dissecting out the vessel. Yet, the essential point of this method is not to ligate the appendix.

I have had no experience with this procedure, but Seelig² quotes two cases of hemorrhage from the bowel reported to him by Elsberg of New York and Charles Mayo following this method of treating the stump, in which the respective operators believed the hemorrhage came from the unligated appendicular artery. Hemostasis is as basic a law in surgery as is asepsis, so that this method must surely be considered unsurgical and dangerous.

The two methods so far described can be together criticized in that they both require the passage of a purse-string suture in the wall of the cecum. That this apparently simple surgical feat often results in a penetration of the bowel is not realized by the operator. We must remember that the wall of the cecum represents the thinnest portion of the entire intestinal tract. Roeder³ has shown in a recent paper that, in one hundred appendectomies in which the inverting suture was used and immediately after the suture had been placed the needle and thread were dropped into a culture tube, in 88 per cent of those cases a positive growth was obtained, proving that the needle had penetrated the lumen of the cecum. Another possible result of the contamination of the purse-string suture is the occasional wound infection of the abdominal wall in interval and apparently clean appendectomies.

That we do not more often get into trouble as a result of this penetration is due to the remarkable protective powers of the omentum. The inevitable result, however, is a great incidence of post-operative adhesions, and Roder in this same paper has made a study of 105 appendectomies which later came to reoperation for various causes and in which he found that 85 per cent had adhesions around the cecum. He believes that the greatest cause of these adhesions is the trauma resulting from the passage of the purse-string suture.

There are many instances of acute appendicitis in which the base of the appendix is indurated, the wall of the cecum extremely friable, and the operator trained and taught to methods of inversion wastes considerable valuable time and further endangers his patient by repeated attempts to pass a satisfactory purse-string suture.

Anyone who has been around the operating room must have seen many cases in which, after an easy and rapid removal of the appendix, the operator spent considerable time trying to deliver an immobile cecum sufficiently for purpose of inversion. Such

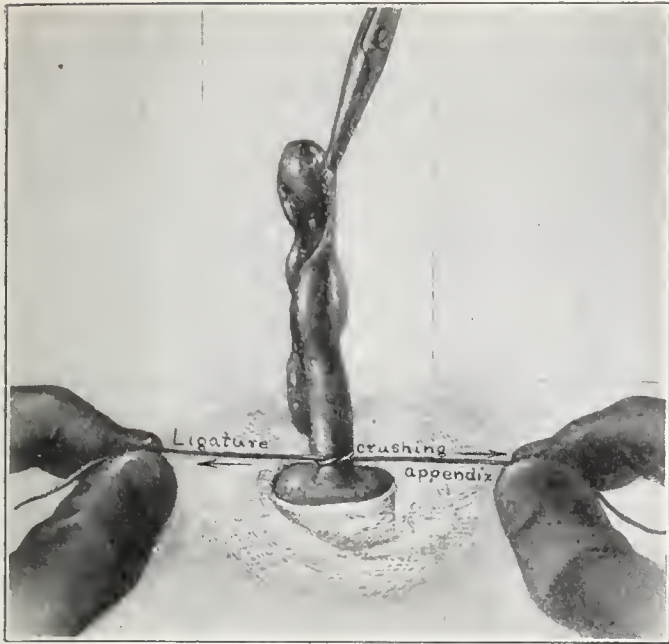


Fig. 1—After freeing the appendix from the meso appendix in the usual manner, it is held up by the assistant with a hemostat applied to its tip and, **without any previous application of crushing forceps**, a No. 2 chromic ligature is firmly tied about one-fourth inch from the base. This tie acts as a crushing forceps, and its ends are left long and held by the operator.

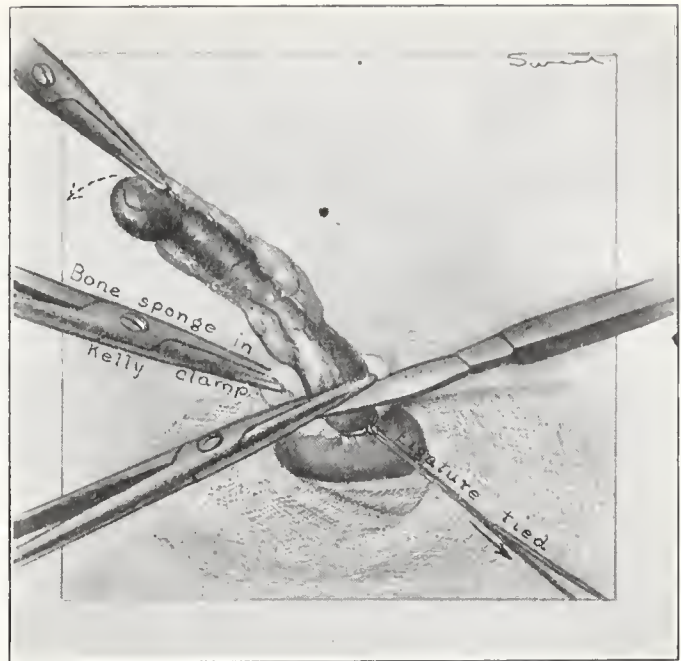


Fig. 2—A split gauze is carefully draped around the base of the appendix protecting the cecum, a straight Kelly clamp is applied about one-fourth inch distal to this tie, and a bone sponge is held in a forceps just behind the appendix by the assistant, and the appendix is severed by a knife, previously dipped in carbolic acid.

attempts are usually accompanied by much mauling and occasional tearing of tissues, with subsequent stormy postoperative meteorism.

Even assuming, however, that the cecum is not friable and is easily delivered into the operative field, there is still the danger of striking a small vessel in passing the purse-string suture and causing a spreading hematoma. We have all seen that happen, and often wonder if any harm results from this subserous hematoma. That harm does result occasionally is proved by the following case which I found in the review of deaths from appendicitis at the Mount Zion Hospital during the last four years.

Hospital, No. 36745. Woman, aet 23. Entered hospital, April 22, 1926, suffering from typical acute appendicitis. She was operated on the same day, a distended, infected appendix removed, the stump "inverted" in the usual manner. The operator noted in placing the purse-string suture that he had struck a small vessel which caused spreading hematoma in the wall of the cecum, but which seemed to be controlled before he closed the abdomen.

On the third day postoperatively, following an enema, patient complained of pain in the region of the incision. She looked badly, and blood count showed that hemoglobin had dropped from 75 per cent on day of entry to 57 per cent, and the red blood cells had dropped to 3,500,000. During the following three days the patient developed a septic temperature, looked worse each day, and on the seventh day postoperatively, a consultant advised reopening of the abdomen, as he felt there was an internal hemorrhage.

On April 29, 1925, at reoperation a large amount of free blood was found in the abdomen. The entire wall of the cecum was necrotic, there was a large amount of free blood and clots walled off by adhesions about the cecum, and a gangrenous mesentery. Patient expired despite transfusions and usual stimulation.

There seemed to be no question in the minds of the original operator and consultant of this particular case that the course of events could be traced directly to the small hematoma caused by the purse-string suture at the first operation.

There is still another reported remote danger

due to the inversion method, with which I have not had personal experience. Thus Maloney⁴ points out that there is a likelihood of the formation of inflammatory tumors of the cecum due to the buried silk or linen, and he has seen three such. Bunts⁵ has shown the occasional formation of diverticuli following burial of the stump of the appendix. Case⁶ has also shown by x-ray that there may be a stasis at the base of the appendix where a purse-string suture has been used.

Thus far I have tried to show that the inversion methods of treating the appendix stump are in theory and practice unsurgical. It now remains to prove that simple ligation with noninversion of the stump is a satisfactory and safe procedure. Those who are not familiar with this procedure can refer to the illustrations accompanying this article which show the exact technique of this method as I practice it.

One of the main theoretical objections to this method is the contention that the stump cannot be secure because mucous membrane is brought into apposition with mucous membrane. M. G. Seelig, in 1904, when this method was being popularized at Mount Sinai Hospital, New York, demonstrated by numerous microscopic sections taken through different appendices ligated in this manner that this objection is not valid. Microscopical section shows that the ligation forces back the mucous membrane for one-half inch, closing off the lumen completely; and further shows that the stump is fortified by four definite layers, from within out: (1) layer of polypoid lymphoid tissue; (2) thickened layer of resistant submucosa; (3) layer of muscularis; (4) layer of serosa, in addition to it being shut off by the infolding of the mucous membrane.

The next serious objection to this method is that it leaves free in the abdominal cavity a potentially infected stump. It has been proved by cultural tests that the application of pure phenol is sufficient to thoroughly disinfect the stump; so that the conten-

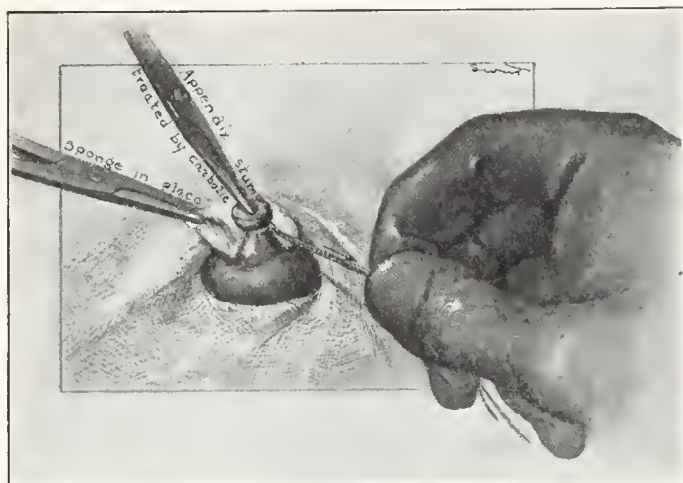


Fig. 3—The funnel-shaped stump which is now held by operator by means of the original tie is thoroughly cauterized by the application of the tip of a straight hemostat which has been dipped in a small basin of phenol in the same manner as a pen is dipped in ink, the bone sponge and gauze protecting the cecum from any excess of phenol. When the stump is whitened by the application of the phenol, which usually occurs after two applications, we can assume it is practically sterile.

tion that we are leaving an infected stump in the abdominal cavity does not hold good. It is true that there is certain to be some secretion poured out about this necrotic stump, but certainly there is no structure in the human body that is better able to take care of this secretion than the peritoneum.

Another argument against this method is that the uncovered stump will result in the formation of dangerous adhesions. Howard Lilienthal,⁷ first in 1903 in a published report, and again recently (1925) in personal conversation, is very emphatic in his contention that this method is the *only* way in which dangerous adhesions can be prevented. He has examined many cases at postmortem from this point of view, and from his study concludes that the stump is cast off in three to six days, leaving a small, smooth, dimpled spot to mark the point of origin of the appendix. Furthermore he has noted that the operative region about the cecum was practically always free from adhesions.

Maloney of Cincinnati, who has had experience in 3500 cases treated by noninversion, states that in reoperative cases there never has been an adhesion seen, nor has the cecal scar been visible.

Horsley,⁸ who also advocates non-inversion, makes the following statement: "I have had occasion to reoperate for other causes on a number of patients on whom the stump of the appendix has been treated in this simple manner, and in no instance have I found a serious adhesion or any other complication. In the majority of cases in which the stump has been buried I have found either unusual adhesions or a lump in the bowel or else a diverticulum, such as had been described by Bunts."

The crux of the whole argument is that if adhesions form around the site of an inversion, they form to stay and make trouble; whereas if they attach themselves to the stump which has been ligated tightly enough their traction on that stump will tend to cause its separation from the cecum, thus doing away with painful adherent adhesions and eliminating a possibility of an obstruction due to a band.

Finally, the criticism is made that the ligature

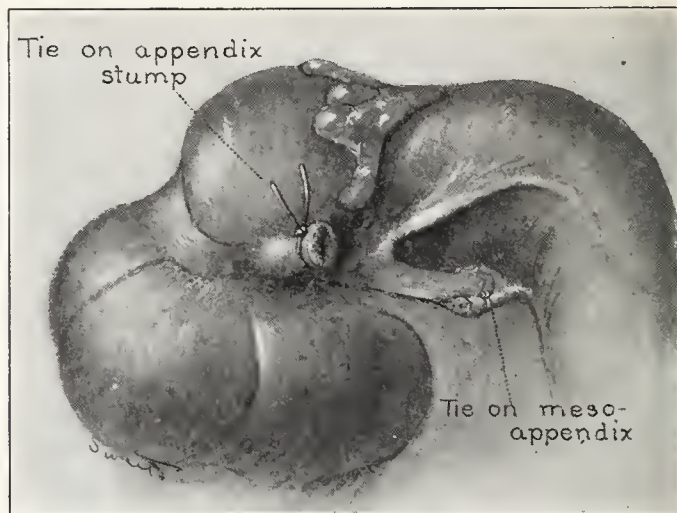


Fig. 4—The ends of the ligature are cut about three-fourths inch long, and the stump is dropped back into the abdominal cavity, completing this step of the operation.

on the stump of the appendix may blow off. Such a possibility should be given as much consideration as the surgeon gives to the possibility of a ligature blowing off of a large blood vessel. The stump of the appendix is soft, and the ligature usually sinks in, snug and securely; better in fact than it does on a good-sized artery. Moreover, the pressure within the cecum never begins to approximate the blood pressure; so that a surgeon who feels capable of safely ligating a blood vessel should be able to safely ligate the appendix stump.

However, the objections enumerated are all theoretical, for this method of treating the stump of the appendix has been used by the entire surgical staff of Mount Sinai Hospital in New York City, in thousands of cases during the last twenty-five years without a single cause for regret. My own personal experience at that hospital in observing over a thousand cases treated in this manner, as well as a small number that I have done privately and on the service of Harold Brunn at the Mount Zion Hospital of San Francisco, has failed to substantiate any of the criticisms directed against this procedure, nor have I noted any other reason for abandoning this method.

Since my first introduction to this method I have always believed that the incidence of fecal fistulae would be less if this method were more universally adopted. Just recently Colp⁹ has analyzed about 3000 cases of acute appendicitis in which there was noted an incidence of 1.1 per cent fecal fistula compared to an incidence of about 5 per cent from other published statistics, and he believes that the lowered incidence in his series may be largely due to the non-inversion method of treating the appendix stump.

In conclusion, I have tried to show that the inversion methods of treating the appendix stump are dangerous, unsurgical, and unnecessary procedures for the following reasons:

1. There is danger of abscess formation in the wall of the cecum.
2. In the true inversion method there is danger of secondary hemorrhage from the unligated appendicular artery.
3. These methods are not applicable to every

case, require more time and offer greater technical difficulties.

4. They are largely responsible for the postoperative appendectomy adhesions and probably give a greater incidence of fecal fistulae.

5. They are the cause of remote complications such as inflammatory tumors of the cecum and diverticuli.

6. Judging from the review of deaths from operative appendicitis in Mount Zion Hospital during the last four years, and this review can be taken as typical of the average general hospital throughout the country, we can charge inversion methods of treating the appendix stump as being responsible for a definite percentage of our fatal results.

On the other hand, non-inversion offers us a method to which none of these objections can be made, and in addition it is undeniably simple, time saving, and adaptable to practically all cases.

710 Medico-Dental Building.

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DISCUSSION

CHARLES G. LEVISON, M.D. (870 Market Street, San Francisco)—My attention was first called to this technique during an eastern trip about 1904. I was much impressed at the time, and had decided to adopt the method. At this time in conversation with the heads of two large clinics, I was informed by one of them that he had lost a patient because of a slipping of a ligature, and by the other that he had had a death from tetanus apparently due to the incomplete sterilization of the stump.

These experiences destroyed my interest in the procedure which I have never employed. I feel, however, that the method has great value because it has been practiced, to my knowledge, by many of the important operators in this country with satisfying results, for if the results had not been satisfactory the operation would have been discarded.

In my opinion it offers two definite advantages. First, the operation is easier because of its simplicity and rapidity. Second, and the most important, is the avoidance of subperitoneal hemorrhage consequent upon the puncture of a vessel. This is a potential danger always present in the purse-string technique.

HAROLD BRUNN, M.D. (384 Post Street, San Francisco)—Doctor Harris has given us very convincing argu-

ments in favor of the noninversion method of treating the stump of the appendix.

We are all apt to follow procedures that we have become accustomed to use and that seem satisfactory without actually considering methods that may be an improvement and at the same time simplifying the technique.

The long series of cases in which this method has been used, and the test that has been given it in some of the best clinics in America immediately gives us confidence in the procedure.

Until Doctor Harris brought this simplified technique to my attention I had always used the inversion method with Pagenstecher or catgut stitch which most surgeons usually employ. For the past year I have adopted in all my cases, without exception, this method of simply tying off the appendix with chromic gut and carbolizing the stump thoroughly. The results have been most satisfactory, and I believe, taking it all in all, the convalescence is even smoother than with the inversion stitch.

The method has many advantages. It is extremely expeditious—I should say it consumes at least half the time of the other method. There is much less handling of the bowel and the danger of puncturing the lumen of the bowel or inverting a septic focus, or puncturing a vessel with hematoma, is entirely avoided. In pelvic work when the appendix is to be removed as a matter of routine, not because of disease, this saving of time makes it a satisfactory procedure. The removal of an appendix through a hernial sac, which often becomes necessary, is infinitely simpler with this technique.

My experience with the method is sufficient at the present time to warrant recommending it, and I am convinced that I shall never return to the older method of inversion.

H. A. L. RYFKOGEL, M.D. (516 Sutter Street, San Francisco)—About twenty-five years ago I saw Wyeth of New York remove an appendix by ligation without inversion, and heard him argue that it was the only rational method. From that time until five years ago I used this method in all cases where inversion was difficult because I realized that, so long as the method had been demonstrated by so able a surgeon, it could not be good surgery to add unnecessary trauma where the wall of the cecum was thickened and friable from inflammatory infiltration or where the stump was difficult of access. I continued to use the inversion method when it was easy.

About five years ago a patient on whom I had performed an appendectomy for recurring appendicitis in the interval developed a general peritonitis, and I believe the purse-string stitch was the cause.

Since then I have, without exception, used the simple ligation method described by Doctor Harris, and have no reason to repent my change. Lately I have been using the cautery knife to sever the mesentery and the appendix, and to sterilize the stump. This further simplifies the procedure.

Dr. Franklin Harris deserves much praise for his clear and thorough discussion of so important a subject and for so lucidly demonstrating that tradition still holds the majority of operators to an unsurgical technique.

Nation has Learned Lesson from State—The so-called "Monkey Trial" in Tennessee had at least one salutary effect on the people of the United States, according to Professor Samuel J. Holmes of the Zoology Department of the University of California, who is chairman of the Committee on Freedom of Teaching in Science of the American Association of University Professors.

Professor Holmes, through information sent to him by state universities, finds that although twelve states have had anti-evolution bills before their legislatures during the past year similar to those in force in Tennessee and Mississippi, not one was passed. In every case the legislators decided against any measure which would curtail the work of scientists.

The states involved were North and South Carolina, Oklahoma, Missouri, Arkansas, North Dakota, Minnesota, West Virginia, California, Delaware, Alabama, and Louisiana.

NASAL ACCESSORY SINUSITIS IN CHILDREN *

By ALBERT H. ALAND, M. D.
Ogden, Utah

DISCUSSION by Francis L. Rogers, M. D., Long Beach;
H. Rexford Hoobler, M. D., Oakland; J. A. Connell,
M. D., Riverside.

PROBABLY the chief reason why sinusitis in children has been so frequently and generally overlooked, is that the opinion has been and still is prevalent that the sinuses in children are so undeveloped that they are not to be considered as foci of infection. It is no doubt true that sinusitis is less frequent in children than in adults, but it is much more common than most rhinologists think. It has been a lack of knowledge of the anatomy that has largely accounted for this misconception. Onodi,¹ Schaeffer,² Davis,³ Dean,⁴ Armstrong,⁵ and others have made studies which have corrected this misconception. This paper will therefore be devoted principally to a discussion of the anatomy, physiology and pathology of these structures.

No structures in the entire body are subject to such wide variations in size, shape, location, and development as the nasal accessory sinuses. Oppenheimer⁶ says that investigations of anatomic specimens and references to the work of others, subsequent to 1912, when he called attention to the frequency of accessory sinus disease in children, seems to demonstrate that accessory sinus development occurs at a much earlier age than is generally considered by most investigators, and it is accepted that their variation in size, shape and position at different ages up to the period when they assume the adult type is extreme. Judging from the author's study of anatomic specimens and from radiographic evidence, there can be no doubt but that the variations in the adult are as great as in childhood. Although authorities differ somewhat in their opinions as to the time of appearance and full development of the sinuses, there is a fairly definite conformity in all the statistics available on the anatomy of these sinuses. It is conceded that the maxillary antra have the earliest development and can be recognized at about the fourth month of fetal life, and are well defined at birth. According to Schaeffer² the average size at birth is from 3 to 4 mm. wide, 4 to 6 mm. deep, and 7 to 8 mm. in the anteroposterior diameter. At birth the antrum is very rarely in intimate relation with the inferior meatus, as x-rays show the floor to be at the level of the attachment of the inferior turbinate and the rudiments of the deciduous and permanent teeth to be in the floor. The tooth buds are never found in the meatal wall. If the floor is above the attachment of the inferior turbinate, exploratory puncture should, of course, be made through the middle meatus. Usually after the age of 8 years the sinus is in intimate relation with the inferior meatus as a result of the changes in the bones of the face which occur during the second dentition. The antra are supposed to reach the adult type about the twelfth year, and are fully developed by the fifteenth to eighteenth year. Then

the thickest wall is formed by the body of the superior maxilla posteriorly, and the orbital wall superiorly is the thinnest. The maxillary antra are very rarely absent. The early development of these sinuses accounts for their being most frequently infected in childhood.

Evidences of the ethmoid sinuses are seen at the eighth fetal month, and most investigators claim that the ethmoid labyrinths are always present at birth. At the age of 8 to 10 years, ostia are found opening into the nasal meati, those of the anterior ethmoid group draining into the middle and those of the posterior group into the superior meatus. The inflammatory conditions of the antra and ethmoids are more frequent than those of the frontal and sphenoidal sinuses which develop later. It is generally agreed that infection is much more frequent in the anterior group than in the posterior group of ethmoid cells. As the internal wall of the orbit forms the external limit of the ethmoid labyrinth, the possibility of ocular symptoms is apparent, and in operating in this region great care must be taken to avoid injury to the contents of the orbit by breaking through the very thin lamina papracea.

Concerning the frontal sinuses, it is claimed that they develop in one of three ways: (1) The result of an extension of one of the ethmoid cells into the frontal bone, (2) extension of the whole recessus frontalis, or (3) extension from the ventral extremity of the infundibulum ethmoidale. Oppenheimer⁶ says they are usually not developed before the fifth to seventh year, and reach full development at the eighteenth year. Onodi,¹ Davis,³ Schaeffer,² and others agree that the frontal sinus makes its appearance between the end of the first year and the beginning of the third year. Its development is slow, and by the sixth or seventh year it has reached the size of a pea. Full development is obtained at about the twentieth year.

The sphenoid sinus is a distinct cell in the body of the sphenoid bone at birth. Its real development begins at the fourth month, and usually a definite cavity exists by the third year. It is well developed by the seventh year, and reaches full development at about the fifteenth year. Schaeffer² has found this sinus as large as 5 x 3 x 2 mm. at birth, and thinks that it is fully developed by the age of 10 years. L. W. Dean⁷ has reported a case of sphenoidal disease in a child 5 years and 5 months old in which at autopsy the sinus measured 18 mm. wide, 10 mm. deep, and 19 mm. in the anteroposterior diameter. Davis³ and Onodi¹ think that the average size of this sinus at 2 years of age is 5 x 4 x 2½ mm., and Schaeffer and Mosher are of the opinion that this sinus is larger in children than we ordinarily expect it to be. Schaeffer² states that it may come into intimate relationship with the maxillary and ophthalmic nerves as early as the third year, and with the Vidian canal by the sixth year. In case of a very large ramifying sinus it is conceivable that these nerves may be involved much earlier. Sluder⁸ states that at the age of 3 to 5 years the bone between these nerves and the sphenoid sinus may be only the thickness of an egg shell.

These numerous cavities and recesses adjoining the nasal meati form ideal locations for the implan-

* Read before the Utah Ophthalmological Society, April, 1926.

tation and growth of microorganisms. Adenoids and diseased tonsils are often the sources of the sinus infection which extends either by direct contiguity of tissue or through the lymphatics. Deviations of the septum, hypertrophic turbinates, polypi, congested nasal mucosa and small nasal cavities all interfere with the expulsion of nasal secretions and purulent matter and deflect expiratory and expulsive air currents in the direction of the sinuses into which infection is carried. These abnormalities also interfere with the ventilation and drainage, and thus prolong the period of infection once it is established. In childhood the upper respiratory tract is particularly susceptible to infection, and is known to be involved in nearly all the acute exanthemata, especially in measles, scarlet fever, pertussis, and diphtheria. In these diseases we are always looking for ear complications, but seldom investigate for sinus infections, which are probably just as frequent complications. It is likely that many cases of meningitis in children are the result of unrecognized sinusitis because the sinuses are surrounded by much softer bone than at a later period of life, there is a more profuse distribution of the lymphatic and vascular systems, the mucosa is in more intimate relation to the bone and open sutures and dehiscences in the bones of the skull make extension to the meninges much more likely than in an adult.

The bacteria most commonly found in sinus infection are the following in the order named: staphylococci (45 to 80 per cent), streptococcus pyogenes (40 to 76 per cent), pneumococcus (30 to 36 per cent). Influenza, pseudodiphtheria, Friedlander's bacillus, meningococcus intracellularis, bacillus coli, bacillus pyocyaneus, bacillus pyogenes-foetidus, bacillus tuberculosis, and micrococcus catarrhalis are the less frequently found organisms. It is considered that in the majority of cases the staphylococci are not the primary infecting organisms, but secondary invaders. Armstrong and Dean² in a series of twelve cases of arthritis in children between the ages of 3 and 13 years found the hemolytic streptococcus in the sinuses in eleven cases.

The symptomatology of nasal sinusitis varies considerably in individual cases. Sneezing, nasal obstruction, nasal discharge, irritability, pain or headache, poor appetite, and depression are common subjective symptoms, and mouth breathing, coughing, listlessness, underweight, and pallor are subjective signs. These symptoms and signs are especially significant if the tonsils and adenoids have already been removed, and the pediatrician has been unable to locate any systemic disease. Fever and pain are usually present in acute empyema and usually absent in chronic empyema unless it is during an acute exacerbation. The occurrence of chronic or frequent head colds with nasal discharge should cause us to investigate the nose and accessory sinuses for pathological conditions. Purulent or seropurulent unilateral nasal discharge, especially if intermittent, is suggestive of sinus disease, and usually one finds lymphoid hypertrophy in the nasopharynx corresponding to the side, where the nasal discharge is present and enlargement of the corresponding cervical lymph nodes. Severe occipital or vertical headache with more or less dizziness is suggestive of

retained secretions in the sphenoid sinuses. Transillumination is sometimes of value in children, but is not very reliable because of the thickness of the antral floor containing the unerupted teeth. Examination with the electric nasopharyngoscope will localize the infection in some cases, as will also diagnostic puncture, aspiration and bacteriologic study. X-ray is the greatest aid in determining the presence or absence of sinuses and their size and shape, but for diagnosing the pathology within the sinus it is very unreliable in children.

Regarding the pathology in children very little had been written. Wood⁹ has called attention to the fact that the bones in children are softer and more easily attacked than in adults. Armstrong⁵ reports a case in a child 8 years old in which the antrum was practically empty, containing only a small amount of mucus, but in which microscopic examination of a small piece of tissue removed from the antral floor during operation showed a granulating osteitis. Zuckerkandl¹⁰ states that when bone caries accompanies empyema the latter is the result of the bone caries, while Grünwald¹¹ believes that the empyema usually exists first and that the bone necrosis is secondary to it. The pathology¹⁰ of chronic sinusitis shows a thickened mucous membrane, due to increased fibrous tissue elements, edema and more or less cellular infiltration, chiefly lymphocytes. Plasma cells, polymorphonuclear leukocytes and eosinophils are sometimes seen. Mucous glands when present are distended with mucus. The epithelial layer varies from normal ciliated columnar to stratified cuboidal type, and is often largely desquamated or replaced by granulation tissue.

It is the opinion of many of the most prominent rhinologists and internists that the relation of focal lesions in the accessory nasal cavities of children to systemic diseases, such as arthritis, endocarditis and nephritis, must be considered of an importance equal to that of the lesions appearing secondary to tonsillar and dental disease. Dean,¹⁸ Armstrong,¹² White,¹³ and others^{14 15 16 17} have reported numerous cases of systemic infection, orbital abscesses, optic neuritis, and especially infectious arthritis, which have been cured by treatment of sinus infection. Their cases occurred in infants and children ranging in age from 6 months to 14 years. Killian reports operating on the frontal sinus in a child 15 months old. Dean⁴ has diagnosed and treated suppurative ethmoiditis in children 1 year of age, and reported having drained the antrum in a child 11 months old. A French author has reported a case of empyema of the maxillary antrum occurring at birth. The youngest case the author has had was a baby 7 months old. This case was a most striking example of what the eradication of a focus of infection in the right ethmoid labyrinth did toward curing an osteomyelitis of the fourth metacarpal bone of the left hand which appeared with an orbital abscess of the right eye at the age of one month. When the patient was one month old the orbital abscess had been incised near the inner canthus and drained, and the abscess over the metacarpal bone was opened and drained at the same time. When the child was 3 months old an orthopedic surgeon curetted the metacarpal abscess and put on an exten-

sion splint because about one-half inch shortening had occurred in the bone. He advised having the ethmoid suppuration attended to, as it had persisted. On July 16, 1923, the author did an external operation on the right anterior ethmoid cells, which were found full of pus and granulations. By July 29 the wound had become dry and healed, and the sinus over the metacarpal bone, which had persisted for six months, was also healed. This patient was seen one year later, and there had been no return of the infection either in the ethmoids or in the metacarpal bone.

601-04 First National Bank Building.

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DISCUSSION

FRANCIS L. ROGERS, M. D. (Long Beach)—The paper of Doctor Aland is a clear, able and timely summary of an important and somewhat neglected subject. That the occurrence of sinusitis in children is often overlooked, its frequency underestimated, and the importance of proper treatment often undervalued by the rank and file of the medical profession, must be admitted.

Even rhinologists have not all given to these little patients the careful, painstaking routine attention which they require, and which we give to adults with the same difficulties.

The fact that the orthodox treatment is not so easily applied to children is a reason, if not an adequate excuse, for many of our failures.

Faulty air drainage in the nose being the most common

cause, the re-establishment of this function is naturally a matter of first consideration in treatment. The removal of infection in adjacent structures, tonsils, adenoids, or teeth, is of vital importance in the treatment of sinusitis in children.

Surgery in the nose of children up to 16 years of age should be most conservative.

The diagnosis once made by examination, including transillumination, and confirmed by radiograph, suction preferably by the use of Sonderman's hand bulb, or Nicholl's syphon, have been of great value in my hands in re-establishing adequate drainage, but they must be carefully and systematically applied over a considerable period, and should be tried in almost all cases of sinusitis in children before nasal surgery is undertaken. Puncture and irrigation of the maxillaries and sphenoids are justified in extreme cases.

The author of the paper does not refer to a rather frequent type of sinusitis due to obstruction or maldevelopment, which is often overlooked, and which leads to acute inflammation of the sinus—the so-called negative pressure type in which no discharge is demonstrated, and the sinus by transillumination and x-ray is shown to be clear. This, I believe, may occur in all the sinuses, but is especially prone to develop in the frontals or sphenoids, and is a prolific cause of chronic headaches in children and will explain many of the so-called sick headaches which we find among school children.

The establishment of normal air drainage by surgical procedure is the only means so far proposed which gives permanent and prompt relief.

The all too frequent use of aspirin and other headache tablets sold to the patient by druggists, and I fear too often prescribed by physicians, as headache remedies to these sufferers, is a serious admission, and has driven many a chronic sufferer in desperation to quackery of various sorts.

Doctor Aland's paper should be widely read by the general practitioner, as well as by rhinologists and ophthalmologists.

Better school inspection will locate these nasal abnormalities which predispose to sinusitis in children, and much can be done to prevent these conditions by more systematic and intelligent use of open-air schools.

When we have conquered the causes of "colds in the head" in children we shall have taken a long step toward the promotion of normal growth of nasal structure in the growing child, and shall in like proportion, prevent sinusitis in children.

H. REXFORD HOOBLER, M. D. (Oakland, California)—Doctor Aland has gone into the anatomy, histology and pathology of the accessory nasal sinuses in children and has given us much needed enlightenment on the fundamentals necessary for a better understanding of the infections of these parts.

He does not mention the lymph drainage and the adenopathy which results as a part of the symptomatology of these infections. Recent investigation shows a fairly constant enlargement of the posterior cervical chain of glands extending well out into the shoulder, especially in antrum infections. Little work has been done on the lymph drainage of the sinuses, and if the enlargement of these glands does not aid in diagnosis it may give us some better idea of the lymph drainage of this area.

The doctor is moderate in claiming so few systemic diseases due to these foci of infection. Many rhinologists claim everything from ingrown toenails to dandruff. Close relation has recently been shown between hemorrhagic nephritis and antrum disturbance. In inspection of school children I frequently see chorea associated with chronic nasal discharge. More often the child is anemic, underweight and nervous.

As a focus of infection in children, however, at the present I feel that teeth are far more frequently the offenders and tonsils a close second. With the spread of dental inspection in the schools the teeth as foci are fast being diminished. Parents are far more easily persuaded to have sinuses drained in children than to have tonsils out or teeth attended to.

Surgical interference no doubt is the predominant mode

of procedure at present among rhinologists. It is well, however, before proceeding surgically to irrigate the nose and attempt to build up the child's physical condition. If this fails the more drastic measures can be carried out. The use of the quartz light and sun baths is bactericidal, diminishes the adenopathy and improves the appetite. Bed rest is frequently necessary particularly in the case of the underweight child. Tonics improve the appetite and stimulate blood production. These may be compounds of iron and arsenic or food high in iron. Special care should be given to the mouth hygiene. Free drainage accompanied by the above measures usually brings about a rapid cessation of the discharge and a clearing of the infection.

The best prophylactic is to keep the child's nutrition up at all times. It is surprising how many physicians ignore anemia and underweight in children. If more attention was given to these we would have less sinus infection.

J. A. CONNELL, M. D. (Riverside, California)—Sinusitis in children is of great importance to the rhinologist and pediatrician, and more especially to the general practitioner.

I agree with Doctor Aland that in diagnosis and treatment of the accessory sinuses, as in any other part of the body, we must be familiar with the anatomy and pathology of the parts.

Probably one of the most sadly neglected, wrongly diagnosed case is that of a child with repeated and prolonged colds and a continuous discharge of pus or mucus from the nose. These children are usually treated for the general condition, and are referred to the specialist only when other treatments have failed to restore the child's health. So the cases that come under our observation are usually chronic. Antrum affections are most common, then anterior ethmoid, sphenoid, frontal and posterior ethmoid.

The reason we do not find more of these cases is because we are not accurate enough in our diagnosis. In time gone by we used to call it a "cold in the head" or acute coryza, and that is as far as it went.

In regard to diagnosis, I deem it wise to make a bacteriological examination, transilluminate, x-ray and exploratory puncture.

Like all acute infections the vast majority heal spontaneously, but many times not until hypertrophy of the mucous membrane of the nose, as a result of the irritating acid discharge from the mucous membrane causes a narrowing or obstruction to the nares, which in turn hinders the drainage of the sinus. And drainage is the main object, whether it be natural or artificial. The sinus openings in children are larger proportionately than in adults, and there is seldom complete blocking of all of the sinuses. As long as the normal osteum is sufficiently open drainage takes place, but there is always a risk that a permanent plug will form which will necessitate opening the antrum. Once reasonably sure that there is an infection, it is easy to puncture the antrum, and any discharge found can be washed out through the needle unless the infectious material is too thick to flow through.

When the infection is of nasal origin usually more than one group of sinuses are simultaneously affected. Besides the acute infectious diseases of children I think one of the most important contributing causes of nasal accessory sinus infections are enlarged tonsils and adenoids. Where the tonsils and adenoids have been removed we must first be sure no part has been left. Then if a nasal drainage persists I would suspect an anterior ethmoid or antrum infection, and possibly both.

I believe the very few nasal accessory sinus infections in children, due to diseased teeth, are the results of the trauma or death of pulp in the upper first molars which erupt at the age of 6 years. Due to lack of dental attention, the pulp may become involved before the age of 12 years, and cause the same type of antral infections that we find in adults.

The intestinal tract is now getting the blame in progressive medical circles for a good many things that used to be ascribed to the teeth or the tonsils, but we have decided, come what may, not to have ours removed, such as it is.—*Ohio State M. J.*

THE IMPORTANCE OF CHRONIC ARTHRITIS IN INDUSTRIAL WORK *

By CLARENCE E. REES, M. D.

San Diego

I SHOULD like to take a few minutes to call to your attention a condition which we all know and recognize, but which in our work we are apt to overlook or consider lightly in the face of the injury which we are called upon to treat. The very fact that a patient has had an accident or a sudden onset of symptoms often leads us to consider these the only factors in the case and to discount other findings as of secondary importance. These other findings, however, often prove to be the important elements and prolong the period of suffering and disability unnecessarily. The condition to which I refer is chronic arthritis.

With the exception of orthopedic surgery there is probably no branch of medicine in which arthritis plays so important a rôle as in industrial practice, and yet it is not seriously considered until it makes itself evident after the acute reaction of the injury has subsided. Chronic arthritis, I believe, adds to the period of disability more than any other condition met in this work. It has been my experience that a large percentage of the cases coming before our Industrial Accident Commission for claims and ratings are of this type. In such cases the insurance carrier denies liability, and the special examiner finds no cause for disability; the adjusters class such patients as malingerers.

The presence of chronic arthritis in the working man past 40 years of age is very common, especially among those who do bench work or work which requires long hours in one position. In fact the very frequency of this finding on the x-ray plates probably leads us to disregard its significance in the treatment of these cases.

We all know that arthritic joints are particularly susceptible to injury and that when injured they react to an abnormal degree, so that healing is correspondingly prolonged. These joints cannot be immobilized as long as can joints which were normal before injury, and neither can they be rehabilitated as quickly after the period of immobilization is over.

I am of the opinion that in those industrial cases in which chronic arthritis exists, the patient should be considered medically as well as surgically, and that we should seek at once the underlying condition which is responsible for the arthritis and direct our treatment to its correction as well as to that of the injury which has brought the patient to us. I fully appreciate the fact that some cases of arthritis are apparently resistant to all forms of treatment, but in many of these the condition can at least be held in check and the patient relieved of his symptoms if treatment is instituted. Such treatment, if started at the outset, will certainly make these patients more comfortable and, I believe, will enable them to return to work much sooner than would otherwise be possible.

Rees-Stealy Clinic.

* Chairman's address, Section on Industrial Medicine and Surgery, at the Fifty-Sixth Annual Session, California Medical Association, April 25-28, 1927.

CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

PEPTIC ULCER AND ACHLORHYDRIA*

CASE REPORT

By GARNETT CHENEY, M. D.
San Francisco

PEPTIC ulcer of the stomach or duodenum has always been considered rare in the presence of achlorhydria, while absence of free hydrochloric acid is expected in malignant gastric ulcers. Consequently achlorhydria as determined by the fractional test meal and therapeutic aspirations at the time of the distress may be of considerable diagnostic importance. Palmer¹ recently reviewed the literature on the subject and also 100+ cases of proved gastric and duodenal ulcer occurring at the Presbyterian Hospital in Chicago, and came to the conclusion that achlorhydria had been unequivocally demonstrated in but two cases. The case of gastric ulcer here presented did not show free acid by the usual methods employed during hospital residence, but it had been demonstrated six months previously. The absence of malignant changes was substantiated by autopsy.

CASE REPORT

Mr. H. S., 69, married, German American mining prospector and rancher, entered the hospital on March 17, 1927, complaining of indigestion. His family history and marital history are irrelevant, and his habits had been good. He had attended the out-patient clinic twelve years previously complaining of abdominal pain in the left upper quadrant which was completely relieved by regulating the bowels. A diagnosis of spastic constipation was made. He was quite well for the next ten years, and then began to suffer from indefinite attacks of indigestion with gaseous eructations and aching in the pit of the stomach which sometimes lasted hours, had no relation to meals, and was usually relieved by food or soda. He would have symptom-free intervals lasting several months. Six months before he entered the hospital these complaints brought him to the clinic again. A gastrointestinal x-ray showed a niche on the lesser curvature of the gastric antrum and a retention of 25 per cent of the meal at the end of twenty-four hours; and a single extraction Ewald test meal showed 26 degrees free hydrochloric acid and a total acidity of 39 degrees. A second x-ray a month later failed to show the ulcer niche, but marked retention was still present. He did fairly well on Sippy diet for several months, and then began to lose in strength and weight, vomited occasionally and had almost continuous pain the week before entry. He appeared quite emaciated at entry, there was moderate tenderness in the upper abdomen, and the blood pressure was low. The blood showed a slight secondary anemia, the blood Wassermann was negative, the stools were well formed and free of blood, the urine showed no albumen or sugar, and the icterus index and van den Bergh reaction were within normal limits. A third gastrointestinal x-ray revealed both the ulcer crater and the retention. After repeated gastric lavage over one week's time, two evening samples of juice failed to show any free acid, and a continuous quantitative estimation of gastric secretion by the method of Bloomfield and Keefer² gave very low ten-minute secretions, rapid emptying time and no acid reaction to Topfer's reagent or to neutral red in

any of the specimens following the meal, the total acidity reaching only 6 degrees. The preoperative diagnosis was gastric ulcer, and the absence of free hydrochloric acid indicated that it was probably malignant. An almost completely healed ulcer measuring 3 x 4 cms. was removed by Finney's method of pylorrectomy and a gastroduodenostomy performed. Grossly there was no evidence of malignancy, and several sections of the specimen removed were reported negative for malignancy by Doctor Ophüls. The patient died of a subphrenic abscess and peritonitis two weeks after operation. A complete necropsy did not alter the postoperative clinical diagnosis of chronic prepyloric peptic ulcer with achlorhydria. The anacidity was not checked by histamine injection.

Stanford Hospital.

PYOCYANIC STOMATITIS WITH AGRANULOCYTIC LEUKOPENIA*

CASE REPORT

By FRED H. LINTHICUM, M. D.
Los Angeles

IN 1899 Gheorghiewski¹ claimed to have found a lencocyte-destroying ferment in cultures of the *Bacillus pyocyaneus*.

In 1924 Lovett² reported a fatal case of ulcerative stomatitis associated with extreme leukopenia in which the *Bacillus pyocyaneus* was associated as the apparent cause. This was the first case described as occurring in this country. During the year prior to this, however, about a dozen similar cases had been reported in Germany. The syndrome is variously known as "Agranulocytic Angina," "Agranulocytosis," or as suggested in the present title, "Pyocyanic Stomatitis with Agranulocytis Leukopenia." This name is suggested because, as will be explained later in detail, we have had occasion recently to see a case of ulcerative stomatitis accompanied by an extreme leukopenia, in which the *Bacillus pyocyaneus* was not identified, and in which the patient recovered.

Both the case to be reported today and a second one to be mentioned terminated fatally.

All the cases of the disease reported from Germany in 1923 terminated fatally, and in all of them, as well as the one reported by Lovett in this country in 1924, the *Bacillus pyocyaneus* was obtained from the typical lesions. There have been probably half a dozen cases of so-called agranulocytic angina reported in American literature since then, but in none of them has the organism in question been identified until in the present instance:

The patient in question was a woman aged 42 years. Had been married twelve years. Had been delivered of her first child by caesarean section five weeks prior to the onset of her present illness. Pregnancy had been complicated by a preeclamptic toxemia. She had been in bed since the delivery of her child, and when I first saw her she was complaining of a sore throat which had developed the previous night. Her temperature was 100 degrees; her pulse 90. There was a small grayish patch on the right tonsil with no involvement of the adjacent lymph glands. The next day the temperature

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* Read before the Eye, Ear, Nose, and Throat Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927.

was 101.4. The right tonsil was clear, but the left one had become involved in a manner similar to the opposite side. The tonsillar condition then apparently cleared up. During the next few days an exudate formed along the gingival margins. It spread to the inner aspect of the cheek, the floor of the mouth, and the ventral surface of the tongue. It did not extend to the tonsils or any other structure outside the buccal cavity.

The exudate was thick, gray, and formed fibrous-like bands extending from the gums to the inner surfaces of the cheeks.

It stripped off in large pieces, exposing a surface which did not bleed. On the fifth day the temperature was 104 degrees. The upper lip became edematous and tremendously swollen, followed shortly by a similar condition of the lower lip. By the seventh day the temperature was lower, the swelling of the lips was subsiding, and the exudate in the mouth was disappearing. On the tenth day she suddenly became worse; pulse poor, dyspnoeic and very apprehensive. She began to have involuntary stools. She became comatose, and died on the eleventh day of her illness.

Autopsy was of little or no help in furnishing additional information as to exactly what type of infection had caused her death. There was a moderate icterus. The heart was one-third larger than normal, and on histologic examination showed acute degenerative changes. The liver and kidneys showed evidence of old and acute infection. There was a healed duodenal ulcer and evidences of previous tuberculosis. There were other findings which had no bearing on the terminal illness except to indicate that we had been dealing with an individual whose powers of resistance were generally below par. Immediate cause for death was given as an ulcerative stomatitis and acute myocarditis.

The character and distribution of the exudate; the absence of glandular involvement; the course of the disease, suggested neither diphtheria nor an infection with Vincent's organism. Nevertheless, since spirillae and fusiform bacilli had been found in moderate numbers, it was deemed advisable to treat the case as one of Vincent's angina. Salvarsan was administered intravenously and applied topically, and the gums and mouth received suitable hygiene.

A day or so after the patient's death a re-examination of a portion of the membrane obtained from the mouth during the early stages of the disease revealed the presence of numerous bipolar-staining organisms which were thought to be those of diphtheria. These were soon found, however, to be actively motile and gram-negative, and were finally identified as *Bacillus pyocyaneus*.

This resemblance to the diphtheria bacillus has been mentioned by other workers, notably Park, in his textbook on bacteriology. Gram's method of staining, however, will differentiate these organisms, since the *Bacillus pyocyaneus* is gram-negative and *Bacillus diphtheria* gram-positive. *Pyocyaneus* is easily cultivated, and produces a characteristic blue pigment on suitable media.

Since the original report of a case of this kind in this country in 1924, there have appeared at

various times in the literature descriptions of instances of the disease known as agranulocytic angina. The finding of the *Bacillus pyocyaneus* in these cases has been by no means constant.

E. C. Piatt,³ in a report on the histopathology of agranulocytic angina, discovers in the lesions found in the disease a gram-negative bacillus of which he has to say: "If they belong to the *Bacillus pyocyaneus* species, they must possess some peculiarities in their biologic properties."

Henry S. Weider⁴ reports a case in which the patient suffered two attacks, the second one fatal. The *Bacillus pyocyaneus* was not mentioned.

R. J. Hunter,⁵ in 1926, reports a case following a fractured tibia. He reports cultures from the lesions as showing only the usual flora of the mouth.

Harold P. Hill⁶ of San Francisco has recently reported a case of so-called agranulocytic angina, following the extraction of teeth, in which the *Bacillus pyocyaneus* was sought for and not found, but in which, on account of the blood pictures, the diagnosis of agranulocytic angina was made.

Recently we have had occasion to see a case similar to the last one mentioned. Following the extraction of a number of teeth in a middle-aged woman, she developed a gangrenous process in the mouth and nose. The total white blood count was 1400, with but 3 per cent of granular cells. The blood picture persisted throughout the febrile course of the illness, which lasted for two weeks. The white count gradually resumed its normal proportion and number. Smears from the mouth and nose failed to reveal the presence of the *Bacillus pyocyaneus*. The woman recovered.

On the contrary, Doctors Hammack and Zeiler have recently had occasion to follow still another case of ulcerative stomatitis in a middle-aged woman, in which the white blood count was 2400, with 19 per cent of granular cells and in which the *Bacillus pyocyaneus* was recovered in pure culture from the mouth lesions. The woman died.

Clinically this last case, and the one described in detail earlier, seem to fall in a definite group identical with the ones described in Germany in 1923, and the one case reported by Lovett in this country in 1924. It resembles the so-called cases of agranulocytic anginas described by Piatt, Weider, Hunter, and Hill, insofar as the blood picture and mouth lesions are concerned, but differs from them in the important details that it always occurs in middle-aged women; it is apparently associated with the *Bacillus pyocyaneus*, and it invariably terminates fatally.

It would seem then that one must distinguish between two manifestations of the same disease. Agranulocytosis may occur in any severe stomatitis; it may occur in either sex or at any age. It may be associated with a stomatitis caused by any of the pyogenic organisms. Such cases are not necessarily fatal. Into this group fall all the so-called agranulocytic anginas.

As a subdivision of this class, and one which seems to present more or less of a clinical entity, is suggested that group of cases which apparently occur only in middle-aged women; which in the cases so

far reported have proved fatal and in which the *Bacillus pyocyaneus* has been recovered in pure culture from the typical lesions. For this particular picture is suggested the name "Pyocyanic Stomatitis with Agranulocytic Leukopenia."

523 West Sixth Street.

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SLoughING OF THE URETHRA FOLLOWING THE USE OF A 10 PER CENT SOLUTION OF ACRIFLAVINE

CASE REPORT

By WALTER G. SCHULTE, M. D.
Salt Lake City, Utah

A YOUNG man of 23 presented himself with the following story: Exposed to venereal infection two weeks ago. Three days later there was burning on urination with a slight discharge. A diagnosis of acute gonorrhea was made and he stated that a 10 per cent solution of acriflavine was prescribed. He was told to inject the solution into the urethra three times daily and retain it for five minutes. Injections were very painful, and intolerable after the third day. The medicine was then diluted with an equal quantity of water. Injections were still very painful and urination became difficult, so he discontinued injections and consulted a druggist, who referred him to me.

Physical examination revealed a swollen penis with a yellow necrotic mass 3 mm. in diameter protruding 2 mm. from the urethra. Inguinal glands slightly enlarged on both sides and very tender. No other lesion about the genitals. Urethral smear negative for gonococci, but there were many pus cells. Urine, first and second glass cloudy, third clear. Wassermann negative.

Treatment—Penis immersed in a hot solution of potassium permanganate 1:10,000, once daily for one-half hour. Then 10 per cent calomel ointment dressing. Internally one-half grain of acriflavine in tablet three times daily after meals.

After ten days the slough separated, and it was found to be a cast of the urethra 2 cm. in length. Sounds were introduced every other day. Healing progressed very nicely, and on discharge June 6 there was only a slight stricture of the anterior urethra, 22 French, with normal prostatic secretion. No urethral discharge. Urine clear.

Comment—Acriflavine in 10 per cent solution acted as an escharotic producing sloughing of the urethra. The resulting stricture was much less than

one would expect. Needless to say the tissues may continue to contract with complete occlusion, but the urethral mucosa was soft and showed little thickening at the time he left for another state.

612 Boston Building.

Medicine: Its Accomplishments and Its Needs—

Jabez N. Jackson, Kansas City, Missouri, in the President's address delivered before the American Medical Association at the seventy-eighth annual session, Washington, D. C., May 17, 1927, says: It is a great privilege to have lived in the present generation. Within its span more has been added to the sum of human knowledge than in any previous period of the world's history. The Golden Age it has been called—the Age of Science. Discovery after discovery has followed in such rapid sequence that the mind of ordinary man is awed with amazement. Fundamental principles of science, slowly comprehended through long periods of time past, have suddenly found practical application beyond even the vision of the dreamer. In the fields of medicine the workings of science have been none the less remarkable, though less obvious to the general eye. When the microscope first enabled us to comprehend the fundamental cellular structure of the body, the key to the ultimate interpretation of life was put in our hands. When Pasteur discovered the existence of other cellular organisms capable of attack on human cells, he gave to our science its first knowledge of the essential cause and nature of much of disease, and the new science of bacteriology was born. Through it pathology found a new interpretation and became a vital study. The culture tube and the reagent brought chemistry into the field, and through the three the laboratory became the center of medical investigation. Brief though the span since the birth of these sciences, their contributions to human welfare have been numerous and of value inestimable. The knowledge of how to prevent many diseases has alone saved to the world countless lives and immeasurable expense. Cholera, which once with its death scythe stalked through nations, has become now but a name. Yellow fever, which almost annually gleaned its thousands of human lives and paralyzed commercial activity, has been driven to the far recesses of Africa, where the few cases reported in the past year evidence its dying gasps. The sanitary control of malaria and other infectious fevers made effective by Gorgas built the Panama Canal and rerouted the commerce of the world. The curative contributions of medical and surgical science have been no less notable, though obviously less noted. The paths of progress have been fairly well blazed, but progress must be ever onward. The laboratory, the hospital and the opportunity for co-operation become henceforth the prime problems of medical practice. County or local hospitals are becoming more numerous year by year. Modern hospitals with laboratories and trained assistance cost money. Forty years ago an endowment of \$5000 was adequate to provide for the support of one bed of hospital service constantly occupied for a year—\$300 a year. Today the cost of care of a patient in a city hospital ranges from \$4 to \$8 a day. This does not include the expense of special nursing or other services of like nature. It does not consider the doctor's service at all. The hospital is the outgrowth largely of a new and scientific medicine. Its necessity and its importance to the community must likewise become generally recognized. If proper character of medical service is required in any community, adequate facilities must be offered to attract proper medical talent to a place where it can render the service to which it has been educated. In this way and in this way alone can rural counties solve the problem of their adequate medical service. For the protection of the middleman, endowment is a necessity—endowment that will at least provide for the expense of purely scientific service, a service which in itself has no direct return; endowment that will equip adequate modern laboratories such as proper service demands; endowment that will provide at least modest compensation for the purely scientific laboratory expert who has no other source of remuneration and yet whose aid is a necessity to all who practice; endowment that will meet the expense which the "Generation of Science" has brought to medical service.—*Journal A. M. A.*

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects and discussants invited. Useful extracts from letters will be published.

WHAT ARE THE ESSENTIALS IN POST-OPERATIVE CARE OF PATIENTS AFTER EXTENSIVE BONE SURGERY?

Ernest W. Cleary, San Francisco—The trauma and shock-productive manipulations of major bone surgery make postoperative care a serious consideration. This observation applies with double force to accidental injuries extensively involving bones.

An experienced nurse constantly at the bedside, with judgment enough to handle her patient intelligently and to recognize the early evidence of impending complications, is more than half the battle. She should be fortified by the surgeon's written orders.

Before the patient leaves the surgery, a gastric lavage with a gram of soda bicarbonate in six or eight ounces of water left in the stomach alleviates nausea and thirst.

If much blood has been lost, normal salt solution by hypodermoclysis or intravenously is advisable. In some cases the Murphy drip is of advantage.

Immobilization of the operated part should be adequate, not only to prevent distortion, but to minimize pain, shock, hemorrhage and delayed healing. Asepsis is relative, practically never absolute, and immobilization helps absorption of contaminating organisms and sharp localization of infection if it occurs.

"Heat is life; cold is death," said a noted professor of surgery as he gave instructions for keeping the postoperative patient warm. Put warm garments on the patient before he leaves the surgery. Have his bedding and room thoroughly warmed and kept warm and well ventilated throughout the critical postoperative period.

Water should be given frequently, in small quantities, as soon as the patient can retain it. The writer believes that patients freely supplied with alkaline mineral water get on better and are more resistant to infections. Routine use of liquid petrolatum facilitates bowel elimination. Enemata are preferable to drastic catharsis. Catheterization if necessary should be done only by an attendant competent to avoid infection. Feeding should begin with liquids the morning after operation, if the patient is able to retain food and desires it. Wait till the patient wishes to eat. Soon he should have food which requires mastication. The gastrointestinal tract is thereby encouraged toward normal activity.

Stimulants are practically always contraindicated. A patient may remain for hours in a very low state, respirations shallow, heart action feeble and extremities cold, and yet recover uneventfully if kept

warm and quiet and not stimulated. This miscalled "sinking spell" in such a patient is more often a beneficent reaction which conserves vitality. Inexperienced attendants, unaware of the significance of this reaction, fearful of opiates and ignorant of the effects of narcosis in such cases, are prone, by the same token, to be too ready with dangerous and contraindicated stimulants. Caffein, strychnin or other powerful stimulant may fatally spur a body which has need of and is trying to rest.

Narcotics, judiciously used are a strong support. Morphin sulphate is the safest and surest. The patient is best kept well under its influence during the first three days at least. A young adult may require as much as one-fourth grain every four hours; children and the aged proportionally less. The slow respirations and contracted pupils, indicative of deep narcotization, are too easily recognized by the experienced to make overdosage an imminent danger. The patient should never at this stage so lack the narcotic as to become restless and to suffer severe pain. The dose may be tapered off rapidly in frequency and quantity, and discontinued within a week. Bromides or mild hypnotics may be used as the opiate is withdrawn. Morphin properly administered induces semisuspended animation similar in some respects to hibernation in animals. It aids the natural reaction and the patient dozes toward recovery with a minimum expenditure of energy. Morphin does not depress the heart. Respiratory depression, due to morphin, is easily kept within control by intelligent administration. In fifteen years of practice the writer has not seen a patient in serious danger from morphin given by the surgeon's orders. He has several times seen disaster from failure to use it. Not a single instance is recalled of morphin habit developed from postoperative prescriptions. Morphin does constipate and may interfere temporarily with voluntary emptying of the bladder, it does mask symptoms, it sometimes nauseates, and very rarely a patient with an idiosyncrasy may be excited or too deeply narcotized. All the objections to and shortcomings of morphin pale into insignificance compared to the signal service which it renders the patient in his extremity.

* * *

N. T. Enloe, Chico—The postoperative care of a patient depends largely on the location of the surgery done, the amount of injury necessary to the parts in performing the operation, the condition of the wound as to sepsis or asepsis, and the skill and care of the surgeon.

Should the wound be an infected rather than a clean one, the postoperative care should begin in the surgery. Clean the wound thoroughly with iodine neutralized with plenty of alcohol. Keep the wound full of ether when closing. Use no larger drain than

is absolutely necessary, and place it at the most dependent part.

If the wound is not infected it is not necessary to make it so. Most cases become infected from the skin, this infection being carried with perspiration even after the most careful preparation has been made. Avoid this infection by painting the field of operation with tincture benzoin compound two or three times and allowing it to dry thoroughly before beginning to operate. This is a strong antiseptic. It forms a coating on the skin and prevents the perspiration. The use of towels is to be condemned. They are in the way of the surgeon, and are no barrier to perspiration, which, when mixed with blood, is carried into the wound.

After skin incision is made, change to a sterile knife and fill the wound with tincture benzoin compound.

The doctor's orders must be carried out, as Doctor Cleary suggests, by an experienced nurse of good judgment, and the patient kept quiet. The use of suggestive therapeutics is very important at this time, for practically all cases of shock are the result of fright and not of surgery. Should shock occur, and even should it be surgical, suggestion, good nursing and absolute quiet for the patient usually give the best results. A horse, worn out, nearing the end of a long journey, might reach home by careful persuasion. But one lash of the whip, although it spurs him on for the time, might cause him to fall never to rise again. It is the same in shock. Apply a stimulant. The patient may rally for a short time, but later collapse after this energy is spent and never be able to come back.

I never use gastric lavage. If a physic is given forty-eight rather than twenty-four hours prior to the operation or not given at all, I find very little nausea.

If the operation is necessary as a result of an injury, usually shock, loss of blood and severe pain follow. The shock generally subsides as soon as the patient's confidence is gained. If blood is lost to the point of danger, it should be replaced by saline, preferably by rectum, 2 to 4 ounces, as often as the patient can retain it. In extreme cases use saline intravenously or by hypodermoclysis. The annoying effect of the Murphy drip on the patient has caused me to abandon it.

Immobilization is imperative in all cases. It is conducive to the best possible function after recovery, lessens the irritation which, in turn, lessens the hemorrhage, encourages better circulation, hastens absorption, lessens pain, and promotes more rapid healing.

Heat is applied when indicated by means of hot blankets, etc., but never by hot-water bottles unless we are sure there is no nerve injury or that the vitality of the patient is not so lowered that the heat applied may result in a burn which would not occur under normal condition.

Pain, if severe, should be kept under control by a narcotic, preferably morphin. In cases of idiosyncrasy I have had good results and no depressing

effect by the use of 10 grains of aspirin by rectum.

The alimentary canal should be kept clean by the use of mineral oils or by vaseline made palatable.

I believe that a great many of the postoperative complications in bone surgery can be prevented by proper care in the surgery.

* * *

Robert T. Legge, Berkeley—A greater emphasis should be placed upon the preoperative conditions of each particular case. After exercising the most careful judgment in studying the clinical history and laboratory findings and in making an early diagnosis in the case of bone tumors and osteomyelitis; after using roentgenography at various planes so as not to overlook any pathology; after avoiding the use of hardware in fractures; after debridement in the case of destructive injuries to soft parts and using ultra asepsis in the preparation of the patient for operation; after exercising due respect for the tissues in the field of operation (since primary healing, shock, and hemorrhage are proportionate to the tissue trauma); after routine drainage of all wounds that have any semblance of infection, the postoperative care of extensive bone injuries will be minimized. The after care will consist of rest and scientific nursing, and the patient's hospitalization will be markedly curtailed.

It is certainly a fact that failure in bone operations and anxiety of the surgeon in the postoperative treatment are principally caused by failure to satisfy the necessary biologic, physiologic, and mechanical requirements.

In bone surgery, whether it be due to disease of the structure or to traumatism as in fractures or joint involvements, the surgeon is dealing with hard tissues that require a longer period of convalescence. It is therefore important to use the utmost care to prevent infection. Careful preparation of the site of operation, the best aseptic operating room technique and the use of only sterile instruments in the field of operation are essential. If the asepsis has been perfect the after treatment of extensive bone surgery is absolute rest (secured by cast or Thomas splint), elevation of the part, careful nursing by a well-trained nurse and the prevention of shock, pain, and infection.

A comfortable bed fitted with a Balkan frame which permits easy adjustments and greater comfort to the patient, should be provided.

Should there be a rise in temperature concurrent with chill, followed by sudden elevation of the leukocyte count, the wound should be opened and pus found in the wound or under the periosteum should be drained. Tapping of the bone to allow the escape of pus and to divert the lymph stream away from the circulation may be necessary. If carefully drained and compressed with sterile gauze dipped in boric acid solution and alcohol, the dressings kept warm by means of an electric light over them, and changed frequently, much relief is afforded and progress in regeneration made. The Caryl Dakin technique offers excellent results in the treatment of infected bone and soft tissues.

Where suppuration persists, one must always bear in mind a possible sequestrum of bone or other for-

eign body which requires removal. To promote the closing of the fistula, quartz light, heliotherapy or open-air method favor healing. Vaccine therapy has been advocated, especially by some of the European surgeons.

At the earliest possible opportunity physiotherapy should be established to promote function by the use of massage, diathermy, and other mechanical measures.

Lastly, a careful examination of the chest should be a routine measure to determine the presence of pulmonary metastases in a suspected osteogenetic sarcoma, as such findings may be present without any symptoms suggesting such a complication.

* * *

Charles E. Phillips, Los Angeles—These may be considered under two classes: first, general; and second, local. Doctor Cleary has covered, in an admirable manner, the general treatment to be followed.

There is a wide variation in the local treatment of these cases. Many surgeons attribute their successes or failures to some detail of postoperative treatment. Postoperative accidents to the field of operation may be mechanical or infective.

Mechanical accidents may be classified: weakness of operative structure; hemorrhage, either interstitial or as hematoma; myositis or neuritis due to pressure.

Infective: These complications may arise from metastases from foci elsewhere in the body, by stirring up latent infection in compound wounds, even after years have elapsed, retrograde infection from a moist skin, or most frequently from an imperfect operative technique. Postoperative care must be individualized.

While an absolute aseptic technique is theoretically impossible, yet it may be approximated so closely that contamination almost never occurs.

The treatment should be individualized by classifying the risks. Excellent surgical risk should show an incidence of contamination of well under 1 per cent. Fair surgical risks, such as those in which there are foci of infection removed from the site of operation or other conditions lowering resistance.

Careful attention to the reaction and continuation or elevation of temperature beyond the normal should be followed by a careful and frequent inspection of the wound.

If the wound appears abnormal it should be opened. On opening a wound, smears and cultures should be taken routinely.

When infection is demonstrated the wound should be opened widely and Dakin treatment instituted thoroughly. It is by this means that the benefits of the operation or even the patient's life may be conserved.

In poor surgical risks, by reason of local infection or other causes, the immediate postoperative use of the Dakin treatment is indicated that the benefits of the operation may be accomplished. I have effected healing in old fractures complicated by osteomyelitis by a two-stage process. I first un-

cover the cavity to its fullest extent and, by the use of Dakin treatment, produce a relative sterilization of the cavity, i. e., until no bacteria are apparent on smears. A pedicled bone transplant is then placed and caused to heal under a continuation of the same treatment.

In conclusion: The postoperative treatment of extensive bone surgery must be individualized to obtain the best results.

Rose Bengal Test for Liver Function—N. N. Epstein, G. D. Delprat, and W. J. Kerr, San Francisco, describe a simplification of the technique of the rose bengal test, and review briefly the types of liver injury which may be revealed by a test of this kind. The technique described differs quite markedly from the original technique and offers the advantages of simplicity and accuracy. The artificial standard, made up by adding a known quantity of dye to the normal plasma of each individual has been abandoned, and a two-minute sample is substituted as the standard. The other essential changes in the technique have been the elimination of the four-minute sample, which does not give information of value, and the prolongation of the duration of the test from eight minutes to sixteen minutes. This increased length of time of observation lends more accuracy to the test and has the advantage of giving more information when the eight-minute reading is at the borderline between normal and abnormal. Normal persons absorb rose bengal through the liver from the blood stream very rapidly so that at the end of sixteen minutes only a trace remains in the blood plasma; that is, rarely more than 25 per cent of the amount injected. In chronic cholecystitis the elimination is usually within normal limits, and the test is not an aid in the diagnosis of the condition. In cases of obstructive jaundice, catarrhal jaundice and arsphenamine icterus, the delay in the elimination of the dye is always very definite, being greatest in obstructive jaundice. The test is a valuable aid in detecting these conditions and in following their clinical course. Before the jaundice begins to clear clinically, the improvement in liver activity can be demonstrated by its increased ability to eliminate rose bengal. Following operations for the relief of obstruction of the common duct, the liver function improves markedly. The test may be used as an aid in determining the potency of a cholecystoduodenostomy, as the dye can be readily identified in the duodenal contents. It has proved very valuable in following the course of an arsphenamine hepatitis. In cirrhosis of the liver the impairment of liver function is in direct relation to the amount of scarring in the liver and to the encroachment on the functional reserve of the liver. An advanced case of cirrhosis always shows a marked delay in the excretion of rose bengal. The test is of particular value in the differential diagnosis when ascites is the outstanding symptom. In cardiac failure, in tuberculous peritonitis and in carcinomatosis of the peritoneum, little change from the normal liver function has been noted, while on the other hand, when cirrhosis of the liver is present, there is a very marked impairment of liver function. In metastatic malignancy of the liver the conditions are variable and seem to depend on the amount of liver tissue which can function. Discrete scattered metastatic nodules in the liver do not interfere with its ability to eliminate the dye, but diffuse replacement of the liver tissue by carcinoma very definitely causes a retention of the dye in the blood stream. Chronic passive congestion of the liver does not seem to prevent the absorption of rose bengal, and the curves are within normal limits. Long-continued treatment with arsphenamine and mercury does not disturb the liver activity. Arsphenamine dermatitis unaccompanied by icterus shows elimination of rose bengal within normal limits. In general, it may be seen that the rose bengal test for liver function gives results in direct proportion to the clinical and pathologic data noted in regard to the liver.—*Journal A. M. A.*

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Telephone Douglas 62

Editors GEORGE H. KRESS
EMMA W. POPE
Associate Editor for Nevada . . . HORACE J. BROWN
Associate Editor for Utah J. U. GIESY

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Contributions—Exclusive Publication—Articles are accepted for publication on condition that they are contributed solely to this journal. California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

libraries to prepare bibliographies on any subject, for all who wish to do collateral reading. Printing in CALIFORNIA AND WESTERN MEDICINE, what are at best only partial bibliographies, would not add materially to the scientific value of the contents of this journal. The money expense involved in the printing of bibliographies can be used to better advantage in the development of other features.

In the advertising pages, the directories of the state and component county units have been brought forward to the first pages; likewise, the classified or reading notice advertisements. The Physicians' Directory, which has heretofore been printed in the advertising pages, will be discontinued, as per instructions from the Council; the contracts not being renewable, and all whose cards appear therein, and who so desire, being permitted to withdraw their announcements at once.

Throughout the pages of the journal other minor alterations have been made, which it is hoped will meet with the approbation of the readers. If some of the changes instituted are found in practice not to be improvements, then such will be discontinued.

Suggestions from readers for improvements in CALIFORNIA AND WESTERN MEDICINE are always welcome, and will receive careful consideration by the editorial board.

EDITORIALS

TYPOGRAPHICAL CHANGES IN CALIFORNIA AND WESTERN MEDICINE

This July number of CALIFORNIA AND WESTERN MEDICINE is the beginning of volume twenty-seven of this journal. It seemed a fitting number in which the editors might institute certain changes in the typographical make-up, which they have had under consideration for some time.

In this number the table of contents will be printed on the front cover, so that our readers will be able to tell at a glance, and without seeking elsewhere for the index, just what fields the contents cover, and where any particular items in the journal may be found.

In this index, what may be construed to be the major departments of the journal, are printed in capitals. The relative position of these departments, it is hoped to keep the same in succeeding issues. The thought in all of this has been to make it as easy as possible for readers to become acquainted with the general contents of our official publication and, with a minimum of effort, to be able at all times readily to find special and routine information.

The biographical sketches of contributors have been discontinued. It was felt that these could be found to better advantage in other publications; the thing in which our journal was primarily interested, being not the biographies but the presentation of the work of the contributors.

Specific references in the text of an article will be acceptable. Today the complete indices which are printed by other publications enable medical

THE FLEISCHNER ENDOWMENT FUND

If the medical profession ever expects to earn the full respect of the people, it must first prove that it respects itself. Physicians abroad have long realized this fact and have seen to it that, insofar as possible, their confrères, living and dead, have received public recognition. How strangely this contrasts with our American and, more specifically, with our California custom.

A visitor to almost any city in Europe will find institutes of research, hospitals, yes, almost each ward, operating room and laboratory, perpetuating the memory of some noted physician, who usually at some time or other had worked there or whose achievements in other parts, in the opinion of the local profession, merited recognition.

In this state our schools are named for our great statesmen, sometimes for some of our great educators, and occasionally for some of our public-spirited citizens or merchant princes. Very few public hospitals are named for doctors. Why are they not so named? Would it not be practical to name each ward in every public hospital for some eminent physician? It may be argued that in America we have no Pasteurs, no Listers, no Virchows, no Laennecs, etc. But if we have had no stars of the first magnitude, let us at least perpetuate the memory of the lesser lights until we can replace them by the greater ones later.

In San Francisco, with this in mind, and with a desire to perpetuate the memory of the late E. Charles Fleischner, a group of physicians have started "The E. Charles Fleischner Endowment Fund for the Study, Prevention and Treatment of Communicable Diseases in Childhood." To physicians one need not detail the importance of such

an endowment fund, the income from which may be applied, without a lot of red tape, to the study of such diseases as measles, scarlet fever, mumps, whooping cough, diphtheria, poliomyelitis, etc., to their prevention whenever and wherever possible—and also when necessary, directly to their treatment.

In San Francisco the public is being educated to this need. Fleischner's friends—and these include his confrères and all his former patients—are sending in their contributions. The work is just started. No public drive or campaign is being held. Subscriptions are all voluntary. The more the public realizes what it is all about, the greater will the fund grow. Physicians throughout the state can help it grow, either by contributing directly, or having patients or interested persons send in their checks.

But remember, while this program may seem an ambitious one, it is but one move in what should be a greater effort to get an increased respect for our profession. In honoring one, we honor all.

HOSPITAL STAFF AND COUNTY SOCIETY MEETINGS

A few years ago hospital staff meetings were the exception. Now they are the rule; so much so that the majority of standardized hospitals demand a certain percentage of attendance at the regular staff meetings. In smaller communities where there are only one or two hospitals, and where there is no great division of the activities of component county medical societies into section units or groups of specialists, these one or two additional hospital staff meetings per month mean no special hardship. In the larger cities, however, where men are on the staffs of one to five different hospitals, each demanding a certain amount of obligatory attendance at staff meetings, the situation is otherwise. Here the staff meetings, on top of a multitude of medical society and other conferences, really at times get on the nerves of the hapless physician members. More than ever before, they find themselves spending their evenings away from their homes and families, and not in attendance upon patients, but only in professional conferences with colleagues. So aggravated has the condition become for many men, that a goodly number of colleagues have come to the conclusion that they are not much better off mentally than are athletes physically who have been overfed and overtrained. The evil just noted gives no promise of betterment, the reverse being rather the case.

Overlapping on County Society Programs

A second evil, and one that particularly affects organized medicine, not infrequently results when at such hospital staff meetings, scientific programs are presented that are in many respects either an encroachment, or a duplication on the type of programs which have long been covered by county medical societies and their subordinate units. When programs of the county society type are presented by hospital staffs, they fulfill no special function and perform no particular benefit for their respective institutions. As a matter of fact, because the smaller number of physicians who attend such insti-

tutional conferences do not represent a true cross-section of the professional body of the community, they really become a detriment and can only develop into a menace to the best interests of organized medicine. So often has this error been committed by hospital staff program committees, that warnings have been sounded by the national organizations having to do with hospital standardization; and the defects and dangers of such a procedure in staff meetings have been very pointedly indicated. In most instances, when this unfortunate overlapping has taken place, the sin has been one not of commission, but one of omission; or rather it has been a sin of not having a proper appreciation of what a staff meeting program should best cover, and the means by which the objects desired might be best attained.

True Scope of Hospital Staff Meetings

Without going into details concerning every one of the many phases of the art and science of medicine which could be discussed at a meeting of physicians and surgeons, it should suffice to state that the hospital staff meeting should limit itself strictly:

1. To a consideration of the professional work done in its own institution;
2. To a consideration of ways and means whereby every phase of administrative and professional activity within the institution may be improved; and
3. To a consideration of those matters having to do with hospital activities in general, the discussion of which would make for a betterment of hospital facilities in that particular community and in the state and nation.

Or to put it otherwise, and somewhat in reverse form, the consideration of all other phases of the art and science of medicine not included in the foregoing, in every community, might well be left to those expressions of organized medicine which form the very bulwark of all organized and scientific medicine, namely, the county medical society of that community, and its state and national medical associations.

A Successful Staff Meeting Method

In one of the hospitals with which the writer is connected a staff organization and meeting procedure has been worked out in the last several years that fulfills, we believe, the real purpose of a hospital staff organization, and this without infringing on the pre-existing or proper domains of other medical organizations.

In this hospital of over three hundred beds there is not an overplus of staff meetings, there being only one such session per month. Provision is made for extra meetings, but these are rarely called.

There are three to five presentations of history records of patients who have been under care at the institution. The history records selected by the program committee, after conference with the chart reading committee, are of that kind, wherein matters of diagnosis, treatment or pathology especially come into question; or which, for this, that, or the

other reason should be of particular interest or value to the staff members.

The presentation of the history record is kept as impersonal as possible. This impersonal element is very important. The clinical history, with case number, but not the patient's name mentioned, is compiled and read by one of the interns, who writes up the same from the history sheets. The name of the attending physician or surgeon is not known or mentioned, and the members of the staff do not know whose patient is under discussion unless the attending physician or surgeon chooses on his own account, before the discussion closes, to make a statement that acquaints the staff members with that fact. This presentation by an intern gives very good training to each house physician; means as a rule a presentation that is more pointed and more unbiased than if the attending man was making it; and the system whereby the name of the attending man is not known permits the later discussion to proceed freely, and without engendering misunderstandings.

The program committee deputizes three members of the staff to open the discussion. Each of these, when he is notified that he is down for a discussion, is given a copy of the synopsis that has been previously prepared by the intern, and is told what particular phase of the general subject having to do with the disease under consideration, or any particular phase of the patient's clinical record, is to be discussed by him. Thus this plan provides that the discussion is opened by three staff members who are given specified topics, so that there is a minimum of overlapping; each of these discussors having had an opportunity to consider the complete history of the patient as compiled, and be in a position to give a more logical and pointed expression of viewpoint, than would be the case in a haphazard general discussion without previous thought on the subject.

After the presentation of the viewpoints of the three discussors, the subject is thrown open for general discussion.

The plan above outlined is a simple one. It may be said for it, also, that it works out well in practice. It makes for a thorough analysis of interesting case histories, and lays the foundation for keen and discriminating discussions on scientific topics and experiences that are of pertinent interest to physicians bound together in a staff organization.

* * *

These meetings start promptly at 8 o'clock, and an attempt is made to close them promptly at 10 o'clock. At the end of the scientific presentations, the superintendent of the hospital is usually called on for remarks and for questions. The minutes of the scientific meetings aim to be concise, and yet comprehensive enough to cover the major points brought out in discussion, and are read at the beginning of each meeting.

Not the least of the features in this particular staff organization is an informal luncheon, which is paid for from the staff treasury, but which is provided by the hospital authorities, and which follows immediately in informal buffet fashion at the close of the meeting. In this particular hospital staff the members follow their two hours of scientific feast with edibles and fluids that refresh the physical body, and the meeting room becomes a buzz of pleas-

ant discussion, laughter and exchange of fraternal greetings, for thirty or more minutes.

* * *

There may be other plans of carrying on hospital staff meetings, just as good or better than that which has been here mentioned; but this one we are familiar with, and have seen its gradual and successful development. Because of a long experience in organization work in medical societies, we are of the belief that its practical features lay the foundation for a sound method of procedure and good end-results. It will be a surprise to us if we find that it will be necessary to materially change the methods now in vogue. These methods are outlined in some detail, in the hope of bringing them to the attention of staff groups who may have met with some of the troubles that have come to many hospital organizations, and who may not be familiar with the procedures here enumerated.

EFFECTS OF ELECTRICAL CHARGE ON THE FILTERABILITY OF MICROORGANISMS AND NEUROTOXIC DRUGS

Bacteriologists are at the present time particularly interested in filterable viruses, microorganisms that readily pass through the pores of a Berkefeld filter. Smallpox, rabies, and several other important human diseases are caused by such viruses. It is generally assumed that filterability is due solely to the minute size of the causative agents in these viruses. That minuteness of size, however, is not the sole reason for their filterability is shown by recent work by KRAMER¹ on the effects of the electrical charge of filters on the passage of microorganisms, microbic products, and neurotoxic drugs.

The filters commonly used in bacteriological work are composed of some form or compound of silicic acid, such as sand, porcelain or diatomaceous earth. Siliceous filters all have a definite negative electrical charge. Basic dyes (e. g., victoria blue) will not pass through negatively charged filters, while acid dyes (e. g., congo red) are readily filterable. A filter with a positive electrical charge is readily constructed from plaster of paris. Through a plaster of paris filter the above relationship is reversed, victoria blue being filterable, while congo red is held back. An electrically neutral filter may be made by mixing siliceous material and plaster of paris. Through a neutral filter, both victoria blue and congo red are filterable.

KRAMER found that vaccine virus, the virus of rabies, and other viruses that readily pass through a negatively charged Berkefeld filter will not pass through a positively charged plaster of paris filter. Bacteriophages and bacterial toxins are also generally held back by gypsum filters. Narcotizing drugs are usually removed from a fluid by passage through positively charged plaster of paris, but readily pass through negatively charged siliceous material. With spasm-producing drugs this relationship is reversed.

The effects of the electrical charge of filters, therefore, is not only of theoretical interest to bacteriologists, biochemists, and physiologists, but promises results of hygienic, therapeutic and commercial importance.

1. Kramer, S. P.: J. Infec. Dis., 1927, 40, p. 343.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing editors.

Urology

Ureteral stricture and ureteral kinks have become recognized as definite pathological entities. The former condition was worked out at length by Hunner,¹ and although at that time his views were not widely accepted, all authorities agree now that this condition is the cause of much pathology in the upper urinary tract.

Inasmuch as the most common cause of urinary infection is obstruction in the urinary passages² it is logical to assume that infection in the upper urinary tract can be due to stricture of the ureter the same as a stricture of the urethra will cause infection in the bladder.³ This being true, it naturally follows that in any infection of the upper urinary tract, especially in the chronic or recurrent infections, the obstruction must be diligently sought, and in the absence of a calculus or other obvious cause of obstruction, such as pregnancy or pressure from extraureteral pathology, a ureteral stricture or kink must be either diagnosed or ruled out.

In addition to these cases of definite renal infection, ureteral strictures and kinks cause symptoms due to obstruction, in which there may be no infection present. The most constant of these symptoms is pain in the side. This may be either sharp or dull, and is felt anywhere between the ribs and the pelvis, anteriorly or posteriorly, and radiates to the groin or thigh.⁴

Bladder symptoms such as increased frequency of urination, urgency, dysuria and pain in the bladder is frequently caused by ureteral stricture or kink, and may or may not be accompanied by infection in the bladder.⁵

Gastrointestinal symptoms, chronic indigestion, nausea and vomiting, pain in the abdomen (especially in the epigastrium), and constipation, are common reflex manifestations of ureteral obstruction due to strictures and kinks of the ureter.^{4 5 6} This explains the fact that most of these cases have been treated for everything from appendicitis to gastric carcinoma.

The diagnosis of ureteral kink is made by the pyeloureterogram, which shows the abnormal course of the ureter, the dilatation above the kink in the ureter, and in the kidney pelvis. Although the same method should be used in searching for ureteral

stricture, too much dependence cannot be put in the findings of the pyeloureterogram, but should be supplemented by the use of the bulb. A "hang" is felt when withdrawing the bulb, the same as that felt when using a bulbous bougie in diagnosing urethral stricture.³

The treatment for ureteral kink is nephropexy, if support of the kidney with binders and corsets has failed.⁴ Ureteral strictures are successfully dilated by the use of bougies and bulbs. In addition to these methods of treatment any possible focus of infection must be sought out and remedied.⁵

From the foregoing it is evident that the possibility of a stricture or kink of the ureter must be considered, and either diagnosed or ruled out in all cases of upper urinary infection, or cases presenting pain in the side, bladder symptoms or vague gastrointestinal symptoms in which no definite cause for the condition can be found.

ROGER W. BARNES,
Los Angeles.

Laboratory Medicine and Methods

Blood Calcium Estimations—The most striking feature in the progress of present-day medicine is the application of physiological chemistry to the problems of disease, and particularly in relation to the ductless glands and their secretions. The control of the processes of nutrition by the internal secretions is reflected in the chemistry of the blood. The clinical laboratory methods of blood chemistry as devised by Folin, Benedict and others have given the physician an effective tool in the investigation and control of many conditions which before had baffled his best efforts.

Recently the importance of blood calcium and its control by the hormone of the parathyroids is emphasized by the preparation by Collip¹ and his collaborators of an active extract of these glands—parathyroid extract, Collip—which is available for clinical use, and in a form acceptable to the Council on Pharmacy and Chemistry of the American Medical Association. These workers have shown conclusively, what was before less definitely known, that the conditions resulting from experimental parathyroidectomy in animals and accidental surgical parathyroidectomy in man (the principal clinical manifestation of which is *tetany*, and which is reflected in the blood by extremely low calcium content), are completely prevented and controlled by subcutaneous or intramuscular injection of this extract.

The normal average of calcium is about 10.5 mgs. per 100 cc. of blood serum, varying within the

1. The Diagnosis and Treatment of Obscure Cases of Pyelitis and Hydronephrosis, Internat. Clinics, 1912, IV, 22nd series.

2. Keyes Urology, 1924 edition, pp. 289, 316, 322.

3. Ureteral Stricture, by Hunner in "Cabot's Urology," 1924 edition, Vol. 2, p. 307.

4. Nephropexy for the Relief of Ureteral Kinks Associated with Ptosis, C. E. Burford, M. D. J. A. M. A., Vol. 88, No. 8, p. 541, February 19, 1927.

5. Stricture of the Ureter in Males, Nelse F. Ockerblad, M. D. J. A. M. A., Vol. 88, No. 8, p. 544, February 19, 1927.

6. Ureteral Stricture and Apparent Ureteral Stricture, Gerhard L. Moench, M. D., Urologic and Cutaneous Review, Vol. 30, No. 2, p. 649, November, 1926.

1. Collip, J. B.: The extraction of a parathyroid hormone which will prevent or control parathyroid tetany and which regulates the level of blood calcium. J. Biol. Chem., 63:394-438, March, 1925.

limits of 9 to 12 mgs. Values as low as 5 and 6 mgs. have been seen in the absence of the parathyroids. Conversely the administration of excessive doses of the extract to normal animals or those deprived of the parathyroids causes a rapid rise of the blood calcium to 20 mgs., with serious symptoms and death resulting from the hypercalcemia.

Other conditions definitely recognized as having a basis of hypocalcemia and remediable by parathyroid extract are infantile tetany, the real etiology of which is obscure; and one type of rickets in infants. The treatment of these cases as well as the parathyroidectomized cases must be controlled by blood calcium estimations. It is easily possible by overdose to produce a hypercalcemia, and values above 12 mgs. are undesirable, and above 15 mgs. may be dangerous.

According to McCann,² in addition to the conditions mentioned as essentially associated with low blood calcium and amenable to treatment by injections of parathyroid extract, any pathological condition in which blood calcium is abnormally low, is an indication for its administration. The problem of determining just what these conditions are and when they exist presents a large field for investigation, and it is being extensively cultivated. Some of the conditions recognized more or less definitely as belonging in this category are muscle cramps, nutritional unbalance in tropical peoples, sprue, bronchial asthma, chronic ulcers, dental caries, delayed union and non-union of fractures, gastric tetany (stated by Collip not to be associated with calcium deficiency), lead poisoning, severe nephritis, furunculosis. Clinical reports are made of symptomatic relief in various types of cases, without controlling by blood calcium estimations; these are practically valueless.

The present accepted technique is that of Kramer and Tisdall.³ Collip⁴ states that there are many chances of error in blood calcium determination, and that many reports made by laboratory workers are valueless on account of inaccuracies. It is possible for competent laboratory workers to become proficient in blood calcium estimations as they are in blood sugar and other blood chemistry methods; and the importance of this field of investigation and therapeutics is such that this procedure should be made available in many clinical laboratories.

NEWTON EVANS,
Los Angeles.

Neurosurgery

Localization of Tumors of the Spinal Cord—
In marked contrast to tumors of the brain, of which only about 20 per cent can be completely removed, 80 or more per cent of tumors of the spinal cord are encapsulated extramedullary growths, which will not recur after extirpation. If the spastic paralysis resulting from compression of the cord has lasted three years, there is rarely any return of function. But paraplegias of many months

duration are usually recovered from within a few weeks after removal of the tumor. Early diagnosis and surgical treatment therefore means the difference between complete recovery of function and a tragic permanent paralysis.

The surgery of tumors of the spinal cord dates back only to 1887, when a tumor was localized by Gowers and successfully removed by Horsley. Striking advances in our knowledge of the history and symptoms of compression of the cord have been and are still being made. The whole subject to date has been put in most clear and readable form in Elsberg's¹ book, based on one hundred cases which he personally studied and operated on.

The localization of tumors of the spinal cord is easier than that of tumors of the brain, because a growth cannot attain any considerable size in the spinal canal without compressing the cord and giving definite motor, sensory and reflex signs. A careful history and repeated neurological examinations will accurately localize the great majority. Many patients have intensification of symptoms and signs after a spinal puncture, manifested by increased paralysis, or by a higher and more distinct level of sensory disturbance. The examination, therefore, should always be repeated after withdrawal of spinal fluid.

The greatest difficulty comes in attempting to differentiate very early compression from degenerative changes in the cord which simulate tumor. Dynamic and chemical studies of the spinal fluid (Queckenstedt's and Ayer's tests), are of great assistance in the detection of early partial blocks in the spinal subarachnoid spaces. A new method of diagnosis and localization was introduced in 1921 by Sicard, who showed that lipiodol introduced through a needle at the cisterna magna would be arrested at the upper margin of the tumor, where it could be demonstrated by the roentgen ray. This method unquestionably gives a perfect visual localization in the presence of a block; but in such cases the localization can almost always be made without its use. It is irritative, and it is not absorbed in less than three years. But, more important, the lipiodol is not always arrested by a tumor. Babinski² and Guillain³ have reported cases in which, after negative lipiodol tests, operations have disclosed tumors. Moreover, lipiodol sometimes shows a false arrest which has led to negative explorations. De Martel⁴ has cited four such cases, operated on by him, in two of which the lipiodol localization was made by Sicard. Though the method is still sub judice, it has not lived up to the hopes which were aroused that it would, like cerebral pneumograms in tumors of the brain, localize the few tumors of the spinal cord whose level could not be determined by other methods.

E. B. TOWNE,
San Francisco.

2. McCann, William S.: Parathyroid Therapy. *J. A. M. A.*, 88:566, 567, February 19, 1927.

3. Kramer, Benjamin, and Tisdall, Frederick F.: A simple technique for the determination of calcium and magnesium in small amounts of serum. *J. Biol. Chem.*, 47:475-481, August, 1921.

4. Collip, J. B.: The parathyroid glands. *Medicine*, 5:1-58, February, 1926.

1. Elsberg, Charles A.: Tumors of the Spinal Cord, Paul B. Hoeber, Inc., New York, 1925.

2. Babinski, J., Charpentier, Alb., et Jarkowski, J.: Paraplégie crurale par tumeur extra-dure-mérienne à la région dorsale. Opération. Guérison. (Sur l'épreuve du lipiodol.) *Rev. Neurol.* 2:587, December, 1926.

3. Guillain, G., Alajouanine, T., Périssin et Petit-Dutaillis: Considérations sur la symptomatologie et le diagnostic d'une tumeur intrarachidienne de la région dorsale inférieure. Opération et guérison complète. *Rev. Neurol.*, 1:11, January, 1925.

4. De Martel, T.: Discussion, *Rev. Neurol.*, 2:444, November, 1923.

Nutritional Disorders

Surgery in Diabetics—Elliott P. Joslin has written on "Diabetic Surgery from a Medical Point of View" in the *Boston Medical and Surgical Journal*, January 27, 1927. This article will interest all members of the medical profession. He emphasizes the great need for cooperation between the internist and surgeon and the need for adequate laboratory facilities in order to protect the diabetic, mild or severe, for the surgical diabetic is always a serious diabetic. His statistics show that about one out of three diabetics require surgery eventually.

After the operation there is always the danger of acidosis or other complications. Joslin's statistics show that the mortality in surgical diabetics is strikingly high for his series of cases, even though the operations were performed with the patients receiving the best of care. Diabetes mellitus increases the mortality about six times, and therefore after operation these patients should receive six times the amount of care that the nondiabetic surgical case requires. The blood sugar should be kept at, or very near, normal by frequent small doses of insulin rather than by large infrequent doses, thereby maintaining a constant supply to the tissues and keeping a level blood sugar curve throughout the day and avoiding needless reactions or hyperglycemia part of the time. The carbohydrate intake should be adequate to avoid any tendency to acidosis and this need not be given as often as the insulin. Acidosis is easily preventable when the patient is closely watched.

Since diabetes apparently increases the development of arterial disease, the internist can aid the surgeon in the preoperative and postoperative treatment. Septicemia plays an important rôle in the cause of death, and the danger is heightened when there is insufficient treatment of diabetes. Tuberculosis must always be looked for and carefully guarded. It may develop most unexpectedly in the diabetic over 50 years of age as the lighting up of an old focus.

The incidence of gall-stones in diabetes is high, and the surgeon is a great aid in the prevention of progressive severity of the disease when he removes them. His task is a difficult one when he faces the added risk at operation, but this can be reduced to a minimum with the aid of the laboratory, and the knowledge of the internist whose constant contact with the disease makes the calculation of diets and insulin dosages problems requiring only a few moments to solve.

Surgery can increase the severity of the disease if the patient does not receive thorough care before, during and after operation. Thorough care is not difficult when the disease is known. If the patient is questioned as to the presence of polydipsia, polyuria, polyphagia, or glycosuria at any time—present or past—the urine examined, and, in questionable cases, glucose tolerance tests made, few diabetics will go undiagnosed.

R. E. ALLEN,
San Francisco.

Tuberculosis

Intestinal Tuberculosis—Clinicians have long noted the frequency with which pulmonary tuberculosis is complicated by gastrointestinal symptoms. It is only within recent years, however, that an attempt has been made to investigate early secondary tuberculous lesions of the intestine looking toward their scientific study and treatment. This has been made possible by advances in roentgenological diagnosis, a method which has been admirably investigated by Lawrason Brown and Homer Sampson at the Trudeau Sanatorium. The conclusions reached by these authors are set forth in a small volume,¹ the first of a series of four Trudeau Studies, dealing with various phases of tuberculosis.

Brown and Sampson note that intestinal tuberculosis is the most frequent complication of pulmonary tuberculosis, not even excepting laryngeal tuberculosis. The "usual" symptoms are those that occur in the most advanced stages of the disease, namely, persistent diarrhea, abdominal pain, tender points in the abdomen, with or without rigidity, in the absence of an acute abdominal condition. "Suggestive" symptoms of beginning intestinal tuberculosis include, among others, any digestive disturbances, marked constipation, failure of the pulmonary condition to improve, an irregular temperature with subnormal fluctuations, and possibly decrease of pulmonary symptoms when the patient is not doing well, alternating constipation and diarrhea, and marked nervousness.

Thus, early in the disease the symptoms are seen to be largely "suggestive." The definite diagnosis rests chiefly with the roentgen ray. "General hypermotility, with complete or nearly complete emptying of the colon in twenty-four hours; failure of the cecum or of the ascending colon and hepatic flexure to retain the barium; or the presence of spasm or filling defects (irregular contour, lack of haustrations); or of confirmed segmentation, with or without dilatation or some coils of the small bowel; ileal stasis; and gastric retention are the essential points when the intestine is studied at the third to the tenth hours, and again at the twenty-fourth hour. These findings indicate ulceration only, but when pulmonary tuberculosis is present tuberculous ulceration can be safely diagnosed."

With proper treatment good recoveries are common. The ultra-violet rays and heliotherapy are the methods of choice, medical treatment being largely symptomatic and surgical interference disappointing. Roentgen ray treatment is also employed with encouraging results.

The frequency with which intestinal tuberculosis is encountered in persons with pulmonary tuberculosis makes a knowledge of the diagnostic methods now in use and a knowledge of treatment essential to all those dealing with pulmonary tuberculosis. Indeed, as Brown and Sampson remark, no moderately or far advanced case of pulmonary tuberculosis

1. *Intestinal Tuberculosis: Its Importance, Diagnosis and Treatment. A study of the secondary ulcerative type.* By Lawrason Brown, M.D., chairman of the medical board of the Trudeau Sanatorium, Saranac Lake, New York, and Homer L. Sampson, roentgenographer of the Trudeau Sanatorium, Saranac Lake, New York. Lea and Febiger, 1926.

can be assumed to have been thoroughly examined unless a roentgen-ray study of the bowel has been made.

SIDNEY J. SHIPMAN,
San Francisco.

Ophthalmology

Medical Ophthalmology—Ophthalmology has often been regarded as an isolated specialty without a definite relation to general medicine, excepting in such cases where the fundi show signs of a kidney lesion, or in such diseases as goiter, where the eye signs are prominent. There are, however, a great many diseases in which the ophthalmological findings are definite and of real value in helping to establish the diagnosis. This is true of such diseases as those of the blood vessels (arteriosclerosis); blood diseases: pernicious anemia, leukemia, chlorosis, and others; disorders of the nervous system; nutrition and metabolism; specific infections; hereditary conditions; effects of drugs; parasites and other isolated diseases.

With the introduction of the electric ophthalmoscope, the examination of the eye grounds has become more or less a routine in all cases, so that the average fundus lesion is no longer a mystery to the general practitioner.

One difficulty with medical ophthalmology has been the lack of a ready reference book wherein were discussed briefly and concisely all the ophthalmological signs of general diseases. There have been several excellent books, but they have dealt with the subject in great detail and from an ophthalmological viewpoint. Recently Moore* has written a second edition of his book on Medical Ophthalmology. In this book an attempt has been made to give a concise account of those pathological conditions of the eyes which are of interest in general medical diseases. The changes are chiefly considered under the heads of separate diseases. In Chapter 1 are collected together for separate consideration a heterogeneous group of important ophthalmological signs and symptoms without special reference to the disease with which they are connected. The subsequent chapters are arranged to include systemic groups, such as disease of the nervous system, toxic amblyopia and others. In the table of contents the arrangement is such that one can easily find the desired reference. The matter is fully discussed without the nonessential yet mentioning, the unusual that may occasionally be important. For example, in discussing Argyl-Robertson pupil the fact is also brought out that it sometimes occurs in cases where syphilis can certainly be excluded as the cause.

This book, then, gives a convenient reference on Medical Ophthalmology in which the eye findings can easily be correlated with the general medical examination.

FREDERICK C. CORDES,
San Francisco.

* Moore: Medical Ophthalmology, second edition. Blakiston's Son and Company, Philadelphia.

Physical Therapy

Hospital Control of Physical Therapy—It was not until the American Medical Association seriously considered the value of physical therapeutics in medical treatment and established the Council of Physical Therapy that the main portion of the regular medical profession paid more than a passing interest in its employment in practice. That commercially inclined individuals, urged on by the manufacturers of the various appliances, have reaped an immense financial benefit, is common knowledge. The unscrupulous persons have utilized, largely in a distorted way, methods developed by the pioneer group of physicians who have devoted and devised rational, scientific procedures by the use of water, massage, exercises, and electricity in the treatment of certain diseases and disabilities.

Mock,¹ chairman of the Council of Physical Therapy, in the following remarks, expresses a sensible attitude in which the profession should cooperate: "Physical therapy has come to the front so rapidly and with so much enthusiasm on the part of a great many of us that great care must be observed lest we go too far with it. I don't know whether it would be a good thing for every doctor in the country to have physical therapy equipment in his office or not after traveling around and seeing the way some doctors are using it. We must train a new tribe of doctors in the future who will know it just as they know how to give castor oil and strychnin. Then perhaps it will be safe. Today it is not safe for every doctor to have physical therapy equipment in his office. Physical therapy came into its legitimate place in medicine during the World War. Today it is gradually taking its place with the usual medical and surgical procedures. Unless we guard against allowing it to replace careful diagnostic measures, followed by well-defined but less spectacular methods of treatment, and especially unless we guard against its insidious tendency to make its master an easy living, physical therapy may lead into dishonest practice or quackery."

Granger² emphasizes the importance of hospital control, in part as follows: "A department of physical therapeutics is an economic gain to the community at large, and if not directly a source of revenue to the hospital, yet indirectly, by shortening their stay there, will permit a given number of beds to accommodate a larger number of patients and thus for all intents and purposes increase the bed capacity of the hospital without appreciable increased expense. Not only do the hospital and the community at large benefit from an economic standpoint, but also the patient, who is returned to gainful occupations without impairment of function."

The hospital is the logical place for the development and administering of physical therapy. Under its surveillance the various procedures can be rationally employed, patients receive adequate treatments, scientific investigation carried on and reliable knowledge acquired. Physicians requiring physical therapy assistants should employ only adequately trained

1. Mock, Harry E.: Archives of Physical Therapy Radium, December, 1926, pp. 748-50.

2. Granger, Frank E.: The Journal of the American Medical Association, March 12, 1927.

individuals, and never shift the responsibility of medical supervision. A properly equipped department of physical therapy, under medical supervision, in a hospital should render the best service to the patient, afford physicians the opportunity of obtaining a better practical knowledge of physical therapy, give the medical student a working conception of this branch of medical treatment and train technicians to administer efficient treatment under the direction of a regular licensed physician.

HARRY L. LANGNECKER,
San Francisco.

Dermatology and Syphilology

Calcium Therapy—Progress in therapeutics may follow one of two courses: discovery of new remedies or the more intelligent use of the old ones. New therapeutic agents, like new toys, are always more interesting than the old ones, yet the possibilities of many of the old remedies have by no means been exhausted.

This is exceptionally illustrated in the case of calcium in a recent paper by Roe and Kahn,¹ who show that food inhibits the absorption of calcium from the gastrointestinal tract. The value of calcium in the treatment of certain cutaneous disorders has been a matter of dispute for many years. C. J. White,² while admitting frequent failures, has been thoroughly convinced of its beneficial effects in chronic cases of urticaria, erythema multiforme, and several other conditions. A number of clinicians testify to its value in eczema.

The mode of action of calcium in those conditions which it is supposed to benefit has also been the subject of much debate. Earlier investigators were of the opinion that there was an actual deficit of blood calcium, with diminished coagulability of the blood. More recent studies, however, throw considerable doubt on both ideas. Schwartz and Levin³ examined the blood calcium in a number of skin disorders, including urticaria, eczema, psoriasis, acne and furunculosis, and found the calcium to be within normal limits in all but a very small percentage of cases. In three cases of actinic dermatitis, however, the blood calcium was distinctly low.

Pottenger⁴ has emphasized some new ideas concerning the rôle of calcium in disease. He points out that certain pathologic conditions such as asthma, hay fever, urticaria, and eczema are accompanied by parasympathetic or vagus hyperactivity which occurs in the presence of a relative excess of potassium ions over calcium ions, and that the administration of an excess of calcium stimulates the sympathetic system with relief of clinical symptoms. This might answer the objection that the blood calcium is *quantitatively* normal in eczema and urticaria, since it might at the same time be *relatively*

low as compared with potassium. This mechanism could also account for various exudative phenomena through action on the walls of the blood vessels or changes in the colloidal chemistry of blood or tissues. The subject is complicated, and our feeble knowledge of biochemistry and cell physics does not justify dogmatic assertions at the present time.

The importance of the observations of Roe and Kahn lies in the demonstration of the fact that optimum results from calcium therapy may be expected only when calcium is administered on an empty stomach. Conclusions based on small doses of calcium given either immediately before or immediately after meals are practically worthless. They show, for instance, that the administration by mouth of one single dose of 5 gm. of calcium lactate dissolved in water resulted in an increase of blood calcium from 9.8 mg. to 18.6 mg. in five hours, while in the same individual on another day, 55 gm. of calcium lactate given in 5 gm. doses in 250 cc. of milk for eleven consecutive hours resulted in a maximum rise of 12.5 mg. at the end of the eighth hour. In other words, 5 gms. of calcium lactate in water on an empty stomach caused a 91 per cent elevation of blood calcium in five hours, whereas eleven times as much calcium lactate given in milk produced only a 28 per cent elevation of blood calcium in eight hours. Their explanation of delayed absorption of calcium when given with food is that the food stimulates an outpouring of alkaline digestive juices in the duodenum which precipitates the calcium, thus making absorption of most of it impossible. Their observations include numerous determinations involving the administration of calcium lactate with foods of various kinds, all of which have an inhibitory action. They believe that 5 mg. of calcium lactate in water one-half hour before breakfast and three hours after the evening meal results in a prolonged elevation of the blood calcium fully as satisfactory as can be obtained by the intravenous administration and without any of the dangers.

With these three new ideas regarding calcium, (1) that a relative deficiency may exist in spite of a normal quantitative finding, (2) that the relative deficiency may exert a profound influence on the involutionary nervous system and possibly the colloidal structures of the tissues, and (3) that it is possible to effect a pronounced and prolonged increase of the blood calcium by oral administration of calcium lactate on an empty stomach—with these new ideas, an entirely new set of clinical observations should be compiled. In the light of these new findings it is to be hoped that many of the conflicting opinions of the past will give place to clean-cut certainties.

SAMUEL AYRES, JR.,
Los Angeles.

1. Roe, J. E., and Kahn, B. S.: Absorption of Calcium from the Intestinal Tract of Human Subjects, *J. A. M. A.*, 88:980, March 26, 1927.

2. White, C. J.: The Use of Calcium Lactate in the Treatment of Certain Dermatoses, *J. Cut. Dis.*, 32:691, October 14.

3. Schwartz, H. J., and Levin, O. L.: The Calcium Content of the Blood in Various Diseases of the Skin, *Arch. Derm. and Syph.*, 10:544, November, 1924.

4. Pottenger, F. M.: *Am. J. Med. Sc.*, 167:203, February, 1924.

Since its inception the Jackson Clinic has removed more than seventeen hundred foreign bodies from the air and food passages of sufferers brought to Philadelphia from every part of this country and more distant lands. Eighty per cent of these patients have been children, many of them at death's door.—*American Magazine*.

STATE MEDICAL ASSOCIATIONS

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OFFICIAL NOTICES

Clinical and Research Prize Papers—How Such Papers May Also Be Read at Annual Session—All papers entered for a clinical or research prize and also entered in the Clinical or Research Prize Contest are eligible to be read at the annual meeting of the California Medical Association, providing the paper is received by the state secretary before December 20 of the year preceding the annual meeting and approved by the Program Committee. Conversely, papers written primarily for Section programs may be entered in the Prize Contest in the following way:

Send two copies of your paper to the state secretary, 1016 Balboa Building, San Francisco, before December 20, with an unsigned note that you wish your essay submitted for a prize and also read at the annual session. Sign your paper with your nom de plume. Also send your name in a sealed envelope with the nom de plume appearing on the outside. Use no stationery that in any way reveals your identity.

The state secretary shall deposit all nom de plume envelopes in a safe until the Prize Committee has made its decision.

The state secretary on receiving a prize paper which is submitted for presentation at the annual session shall submit said paper to the members of the Program Committee. The Program Committee will approve or disapprove it for place on the annual program. The Program Committee will inform the state secretary of its decision, and the secretary will then forward the titles of approved papers to the appropriate section secretary with a simple statement that the paper is acceptable for a place on the program. The Prize Committee will not be informed of this decision and action. A paper may be acceptable for a prize and not for a program, and vice versa.

The Prize Committee shall receive all papers which have been sent to the state secretary, whether approved for publication or not, on or before January 1. The sealed written report of the Prize Committee shall be submitted to the state office before March 1.

The Executive Committee, at the first meeting after March 1 of a given year, shall open the nom de plume envelopes and furnish the secretary the proper names of the authors for the published annual program.

The Council shall consider the report of the Prize Committee at its first meeting of the annual session, and shall announce the result at the first general meeting of the Association.

COMPONENT COUNTY SOCIETIES

CONTRA COSTA COUNTY

Dr. M. L. Fernandez was host to the Contra Costa County Medical Society, Saturday, May 28, 1927, at his beautiful home in Pinole.

The meeting was purely a business one, having as its

object to revise the constitution and by-laws of the society, and to organize welfare work to be done by the society.

Dr. L. A. Hedges was made a member of the society.

Doctors Rowell, Beard, and Bumgarner were appointed as a committee to revise the constitution and by-laws.

A most delightful supper was served by Mrs. M. L. Fernandez, following the adjournment of the meeting.

S. N. WEIL, *Secretary*.

KERN COUNTY

The regular meeting of the Kern County Medical Society was held at the Kern General Hospital, May 19, at 8:30 p. m. The meeting was called to order by the past president, Doctor Compton.

Doctor Jones, secretary, read the correspondence. A letter from the San Diego Medical Society, relative to health work, was read, discussed, and a motion moved, seconded, and carried that the city and county health officers and Doctor McNamara investigate the matter and act accordingly. Dr. Joe Smith was appointed chairman of the committee.

Dr. W. D. Sansum, Cottage Hospital, Santa Barbara, was introduced. He gave an exceedingly interesting lecture on "Diet and Insulin." Thanks were extended to Doctor Sansum.

The meeting adjourned to the lunch room, where light refreshments were enjoyed. The meetings will be discontinued until next September 15.

ROBERT M. JONES, *Secretary*.

ORANGE COUNTY

At the regular meeting of the Orange County Medical Society the following resolutions and memorial were adopted:

Whereas, A member of the Orange County Medical Association, David William Hasson, died at his home in Buena Park on March 31; and

Whereas, Doctor Hasson was one of our oldest members, and was respected and loved by all, therefore be it

Resolved, That we sincerely regret the death of our beloved associate, and that the sympathy of this Association be extended to his bereaved wife and family; and be it further

Resolved, That a memorial of his life work be prepared, and that copies of this memorial and these resolutions be sent to the bereaved family and be placed in the records of this Association.

A local Public Welfare Committee consisting of Drs. John Wehrly (chairman), Bessica Raiche, and G. V. Presson has been appointed to cooperate with the corresponding state committee.

R. D. BALL, *Secretary*.

SACRAMENTO COUNTY

The May meeting of the Sacramento Society for Medical Improvement was held in the Empire Room of the Sacramento Hotel on the evening of the 17th. There were thirty-seven members in attendance. The minutes of the April meeting were read and approved. There were no case reports.

Edward W. Beach presented a most interesting discussion of "Some Common Kidney Lesions." Some of the commoner lesions of the kidney, which, of necessity, embraced those of the upper urinary tract, were considered, briefly discussed and demonstrative slides shown of types. Lantern slides were prepared from plain x-rays and pyelograms.

The group comprised (1) stones, (2) hydronephrosis,

(3) ureteral strictures and kinds, (4) tuberculosis, (5) tumors of the kidney.

A resumé of the history of pyelography was given, and the picture of a typical pelvis, distended with an opaque media shown. Deviations were mentioned.

Under discussion of stones, considerable time was devoted to the etiology. Beach pointed out the ability of certain colloidal bodies, always existent in the urine, to exert a "protective action" upon the more insoluble crystalloids as calcium oxalate and uric acid, and to hold these in "colloidal suspension." Surface tension, alteration in the presence of infection and stasis was also a factor in certain cases. Various animal experiments in the actual production of stones were reviewed. A great field of theoretical therapeutics as applicable to the reversible solvency of the colloidal matrix of stones is opened by these experiments. Stones were divided for demonstrative purposes into (1) solitary types, (2) staghorn calculi (3) uric acid showers.

Under hydronephrosis, examples of bilateral types were shown, due to mechanical impediment at the bladder level. Several types of obstructions, unilateral, intermittent in character above the bladder level, were discussed with the consequent degrees of hydronephrosis leading to total kidney destruction shown.

Under strictures, Hunner's work was discussed. Several unusual cases of ureteral strictures and kinks were demonstrated with the resultant kidney pathology.

Under tuberculosis, several interesting cases of calcific deposition with its characteristic soft, feathery, waxy outline were presented in the plain x-ray, notably one in a boy 5 years of age. Various degrees of destruction by the Koch's bacillus from a single excavation of a calyx to autonephrectomy were thrown on the screen.

Under tumors, the cysts were excluded. Several hypernephromas were shown including an unusual case in a young man of 30 years who recently died under the writer's care. Characteristic displacement of the kidney and ureter by extra renal tumors was emphasized and illustrated on the screen.

The paper was discussed by Jones, Hale, Wilder, and Harris.

The second reading of the application for membership of Thomas R. Haig was followed by a vote. He was unanimously elected. A like application from Clarendon A. Foster resulted in the rejection of the application.

The Board of Directors reported that the Public Relations Committee had received the communication from Martha Welpton, chairman of the State Welfare Committee. The recommendations of the latter communication will be studied so as to fit in with their local program.

Jones, local delegate to the state convention; Thomas, secretary; and Harris, councilor, gave their respective reports of the 1927 meeting at Los Angeles. The scientific meetings were briefly reviewed. Certain phases of the proposed state constitution were outlined, and all brought word of the importance of our immediate organization for the 1928 meeting.

A communication was received from the state secretary and was accompanied by a new charter for the society.

Our proposed amendments to the local constitution are in the hands of Hartley Peart for legal opinion. These were presented to Mr. Peart on April 29. A communication from him, dated May 5, tells us that we will hear from him shortly. It is hoped that we may take final action on these at our June meeting.

Meeting adjourned to a buffet lunch.

BERT S. THOMAS, *Secretary*.

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SAN DIEGO COUNTY

At the May dinner meeting of the medical society held at Seltzer's Café, Dr. Clarence Rees read an excellent paper on the treatment of certain types of cancer with the low heat cautery, setting forth the advantages in technique, in safety, and in results of this form of treatment. His paper was discussed by Doctors Newman, Burger,

Lee, Harding, Marlowe, Lounsbury, Hoover, Markley, and Rees.

The May meeting of the Mercy Hospital staff was given over largely to a discussion of an epidemic of measles which has been rampant in the city, and especially of the middle ear and mastoid complications which have occurred in a high percentage of cases. Open discussion of the subject was started by Charles W. Brown and participated in by Wessels, Higbee, Burton, and others.

The Medical Library directors, empowered by an overwhelming vote of its membership, are planning to move the library into the new and spacious quarters offered them by the management of the new Medico-Dental Building. These rooms are on the fourteenth floor and command a magnificent view of bay, ocean, and mountains, an ideal retreat for quiet study.

ROBERT POLLOCK.

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SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held at headquarters of the local Health District, 129 South American Street, Thursday evening, June 2, 1927. Vice-President George H. Sanderson called the meeting to order at 8:30 p. m. Twenty-five were in attendance. Those present were: Drs. E. A. Arthur, N. P. Barbour, E. L. Blackmun, J. F. Blinn, C. A. Broddus, Fred P. Clark, Fred J. Conzelmann, C. F. English, L. M. Haight, C. D. Hollinger, J. P. Hull, H. E. Kaplan, S. E. Latta, R. T. McGurk, F. G. Maggs, F. J. O'Donnell, S. F. Priestly, G. H. Rohrbacher, G. H. Sanderson, J. J. Sippy, F. B. Sheldon, Margaret H. Smyth, C. V. Thompson, A. L. Van Meter, and Dr. Harry Spiro, guest and speaker of the evening. Doctor Thompson of San Francisco and Doctor Hurt of Oakdale were present as visitors. The minutes of the previous meeting were read and approved. The president introduced Doctor Spiro, who spoke on "Diagnosis of Conditions of the Heart and Aorta." Doctor Spiro spoke mostly of his experience in heart and aortic conditions and his great interest in radiology as a means of diagnosis, and brought out of his treasury things old and new. He tried to show that all methods of determining heart size by x-ray are subject to a great percentage of error, so much so that he had practically discarded the various methods of determining heart surface area and heart diameters on films taken in the so-called frontal position only. He stated that his experience, based upon over one thousand cases, had shown him that the determination of the anteroposterior diameter of the heart, using an "angle finder" of his own invention for determining this anteroposterior diameter, had given him more accurate results than any previous method of determining heart size with which he was acquainted.

In order to make a diagnosis, or a differential diagnosis between a functional heart murmur and an organic heart murmur, heart size was one of the determining factors. If one could determine that there was an increase in heart size and a murmur present there probably was no organic defect present. But, Doctor Spiro stated, most teachers today advise that even if the heart is increased in size the finding of systolic murmurs in the region of the apex may mean nothing. This has led to rather a confusing state of affairs. In order to avoid confusion, and in order that the physician may be positive or nearly so, of his diagnosis, Doctor Spiro claimed that if one can determine that the left auricle is enlarged that then the systolic murmurs heard in the region of the apex must be due to the mitral valve defect, and the doctor showed that the best position in which to determine this increase in left auricular size is in the so-called left anterior oblique position.

If the patient is fluoroscoped in this position at an angle of 45 degrees or more, one can be almost sure as to whether there is a left auricular enlargement or not. He stated that if he does find left auricular enlargement that there is a mitral valve defect present, and if there is no left auricular enlargement that there is no mitral valve defect present. He made the statement more emphatic by saying that the above criterion holds irrespec-

tive of the nature of the sounds heard during the course of physical examination.

The determination of the size of the left auricle is helpful also in differentiating between mitral and aortic valve defects. He also showed that, by examining the patient in the left anterior oblique position, it is possible to measure to some degree of accuracy the descending aorta, and he showed that frequently patients have a diagnosis of aneurysm of the arch of the aorta attached to them when, as a matter of fact, it is only a slightly elongated arch of the aorta.

He also showed that the right anterior oblique position is the best position in which to accurately measure the ascending aorta and stated that frequently patients with symptoms of angina pectoris may have an enlargement of either ascending or descending aorta, and yet by ordinary pictures in the frontal plane no pathology is demonstrated.

Doctor Spiro also makes what is called a cardiac pattern. During the fluoroscopic examination he outlines the patient's heart upon the chest, and from this outline he makes a celluloid pattern which is afterward used to check physical findings, thus sometimes avoiding the necessity of a re-examination by x-ray.

He illustrated his talk with lantern slides and motion pictures. A general discussion followed, and the members asked many questions which Doctor Spiro answered in an instructive manner.

There being no further business the meeting adjourned *sine die*.

FRED J. CONZELMANN, *Secretary*.

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STANISLAUS COUNTY

On May 13 the regular meeting of the Stanislaus County Medical Society was held at the Hotel Hughson. Following the dinner, Dr. E. Bancroft Towne of San Francisco talked on neurosurgery.

He gave some highly practical impressions of injuries to the brain, spinal cord and peripheral nerves. This was one of the best and most practical talks ever given the society. Doctor Towne paid special attention to spinal drainage in head injuries. He also called attention to the frequent bad end-results of fractures of the extremities because of overlooking nerve injuries.

There were twenty-two members present. Dr. and Mrs. A. L. Van Meter of Stockton were present.

The secretary was instructed to write to the *Modesto Evening News* endorsing the health articles by Dr. Morris Fishbein.

The medical society is passing through the most successful year of its history. The meetings are very well attended.

J. W. MORGAN, *Secretary*.

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SANTA BARBARA COUNTY

The regular monthly meeting of the Santa Barbara County Medical Society was held on Monday evening, June 13, at 8 o'clock in the Cottage Hospital, with President H. E. Henderson in the chair.

There were present thirty-six members of the society, and several visitors.

The following papers were given:

"The Theory of Cancer"—M. Thorner, M. D., Santa Maria.

"Colloidal Lead and Radiation in the Treatment of Cancer."—H. J. Ullmann, M. D.

"Effect of Lead on Normal and Malignant Tissue"—Doctors Evans, Nuzum, and Ullmann.

"Ureteral Stone Extraction"—Irving Wills, M. D.

The first three papers were discussed by Doctors Brown, Nuzum, Geyman, Means, and Ullmann.

The fourth paper was discussed by Doctor Pierce.

The meeting then went into executive session, and the transfer card of Dr. Bard S. Berry from the San Francisco

County Medical Society was read. It was moved, seconded and carried that Doctor Berry be admitted into the Santa Barbara County Medical Society.

The application of Dr. R. F. Atsatt for membership in the society was read and, having been approved by the Board of Censors, upon ballot Doctor Atsatt was unanimously elected a member of the society.

There being no further business the meeting adjourned.

WILLIAM H. EATON, *Secretary*.

CHANGES IN MEMBERSHIP

New Members—Butte County—John H. Alexander, Chico.

Contra Costa County—L. A. Hedges, Richmond.

Fresno County—Elmer J. Schmidt, LaRue Moore, Fresno.

Los Angeles County—Joseph A. Ball, Chris R. Halloran, Benjamin Hoyt, Paul K. Ito, Ralph Lommen, Margaret R. Otis, Lydia Ovchinnikoff, E. A. Royston, Rolla C. Purdy, Solomon Reina, Herbert Sugar, Benjamin C. Tarnutzer, M. H. Topping, Los Angeles; Carl L. Ballard, Joel S. Kelsey, Santa Monica; R. G. Henderson, Robert S. Magee, Frank E. Stanton, Long Beach; Port R. McWhorter, Beverly Hills; S. P. Tipton, Glendale.

Orange County—Frederick O. Kaps, Frederick S. Pope, Santa Ana.

Sacramento County—Thomas R. Haig, Sacramento.

San Francisco County—Joseph William Crawford, Vincent V. Hardeman, Robert H. MacLauchlan, Frederick P. Shafer, H. Gordon Smith, Frank Elwood Stiles, Samuel L. Welfield, San Francisco.

San Joaquin County—Percy B. Gallegos, Stockton.

Transferred Members—Bard S. Berry, from San Francisco County to Santa Barbara County.

Claude H. Church, from Merced County to Alameda County.

Stella R. Lehr Zimmerer, from Alameda County to Riverside County.

Resigned—Morgan Walcott, San Diego County.

DEATHS

Cothran, William F. Died at Santa Cruz, May 18, 1927, age 59 years. Graduate Medical Department University of California, 1905. Doctor Cothran was a member of the Santa Cruz County Medical Society, the California Medical Association, and Fellow of the American Medical Association.

De Chantreau, Jacques D. Died at San Francisco, June 10, 1927, age 60 years. Graduate Faculty of Medicine, Paris, France, 1891. Licensed in California, 1892. Doctor De Chantreau was a member of the San Francisco County Medical Society, the California Medical Association, and Fellow of the American Medical Association.

Fossum, Otto B. Died at San Luis Obispo, May 27, 1927, age 54 years. Graduate of College of Physicians and Surgeons, San Francisco, 1909. Doctor Fossum was a member of the San Luis Obispo County Medical Society, the California Medical Association, and Fellow of the American Medical Association.

Goodwin, Joshua S. Died at Los Angeles, May 27, 1927, age 31 years. Graduate of the Rush Medical College, 1922. Licensed in California same year. Doctor Goodwin was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

Merrill, Benjamin Eugene. Died at Santa Paula, June 10, 1927, age 56 years. Graduate of Hahnemann Medical College, Philadelphia, 1901; Medico-Chirur. College, Pennsylvania, 1904. Licensed in California in 1911. Doctor Merrill was a member of the Ventura County Medical Society, the California Medical Association, and Fellow of the American Medical Association.

Shaw, Joseph Hughes. Died at Santa Rosa, May 23, 1927, age 45 years. Graduate of University of Cincinnati, Ohio, 1908. Licensed in California in 1914. Doctor Shaw

was a member of the Sonoma County Medical Society, the California Medical Association, and Fellow of the American Medical Association.

Stephenson, Andrew Victor. Died at Long Beach, March 24, 1927, age 57 years. Graduate of the Omaha Medical College, Nebraska, 1896. Licensed in California in 1916. Doctor Stephenson was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

Obituary

Hasson, David William. Born February 20, 1847, in Jo Davies County, Illinois, where he was educated in the public schools.

He enlisted in the Union Army in 1863 when less than 17 years of age and served to the end of the war in 1865 in Company F, 92nd Illinois Mounted Infantry, being mustered out as a sergeant. He settled in Elk Point, South Dakota, where he served as county clerk and recorder for some years.

In 1877 Doctor Hasson graduated from the State University of Iowa College of Medicine, and began a general practice in Vermillion, South Dakota, and Panora, Nebraska, until he served as assistant superintendent of the Norfolk Hospital for the insane, 1888-93. His California certificate was issued in 1893. He practiced in Mentone, San Bernardino County, and Downey until 1898, when he came to Buena Park, where he remained until his death. He was admitted to the Orange County Medical Society in 1901 and served as president in 1914, and was also a member of the California Medical Association and a Fellow of the American Medical Association.

Doctor Hasson was also active in the life of the community. He served one term during 1900-01 as Assemblyman in the California Legislature, where he was the author of the Medical Practice Act of 1901. He was a member and past commander of his local G. A. R. post, and also a past commander of the Southern California Veterans' Association. He was an active Mason and a charter member of his local lodge.

He is survived by his widow and three sons.

Doctor Hasson was one of our oldest and most beloved members. During his active life he was a regular attendant at meetings, and contributed much to their success with his ideas and his cheerfulness. We shall indeed miss his presence.

UTAH STATE MEDICAL ASSOCIATION

W. R. CALDERWOOD, Salt Lake.....President
E. H. SMITH, Ogden.....President-Elect
FRANK B. STEELE, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....
.....Associate Editor for Utah

SCOTCHING A SNAKE

We remember when diphtheria was a scourge in the community—one of the greatest causes of infantile mortality—a menace to be dreaded, at the diagnosis of which the parent of one afflicted by it turned pale and well-nigh ceased to hope. We remember the advent of antitoxin, and the furore pro and con which it aroused. We remember being placed in a position where one almost needed a gun to enforce its administration because of prejudice. And now we hail the work of Schick and the advent of toxin-antitoxin as still another weapon in scotching this dread menace.

Recently in Utah County an intensive campaign of immunization has been carried out under the supervision of the local Health Unit and the State Board of Health. Begun in 1926 the work has gone

steadily forward until now it has achieved a very gratifying result. Elsewhere in this section it is mentioned in more statistical fashion. But here we desire merely to congratulate the Utah County officials on the success of their work. Prevention has always been considered far the better method, where prevention could be brought about. If then the incidence of this disease can be cut to a minimum, certainly a splendid result has been achieved. Furthermore the effects are still more far reaching yet. Such work when consistently carried forward cannot fail to give to the laity a better conception of the profession and its ceaseless endeavor to cooperate with the laity toward better and better standards of health. To such work any conscientious physician may well subscribe his approval or grant his aid. It is in such ways that the profession may best advertise.

The task confronting the profession today is through a campaign of education to scotch the snake of misunderstanding and ignorance. As education has always been the cure of ignorance of whatever nature, we feel that through a broader public education we shall find our main assistance. Let us not only scotch the snakes of ignorance—but kill them.

X-RAISE

Paraphrasing slightly an old quotation: We rise to remark, and our meaning is plain, that for ways that are dark and for tricks that are vain, this Fleischman's Yeast is peculiar.

On our desk lies this invitation to a "Grocers' Party":

"Enclosed you will find two admission tickets to the party which is being given to Salt Lake Grocers by the Fleischman Company on Thursday, June 9, at 8:30 p. m. in the new Elks Club, Salt Lake City.

"At that time we are showing our three-reel movie 'Youth Regained,' which consists of x-ray pictures of the Human Stomach and Intestines, of which we telephoned you.

"We are looking forward to seeing you."

The tickets then contain a dotted line on which the attending doctor is to sign his name—as proof of his presence of course.

How many of the local fraternity of medicos "rose" to the occasion we do not know. We have heard of none or talked with none as yet. Apparently their interest in the human stomach and intestines was not great enough to induce their attendance, although refreshments and dancing followed the pictures.

There is something almost pathetically amusing in the evaluation of medical mentality by this casual suggestion that physicians come to the party and sign their names.

Fundamentally, I feel that yeast is a good thing. It has revolutionized the baking industry since the days when our ancestors pounded grains on a rock and baked the resultant powder mixed with milk or water on a stone. Indirectly yeast is a splendid thing for the advertising department of many a magazine. There it has "raised" the monthly income to a considerable degree. I must presuppose that for its makers yeast must be "raising the wind," since they can pay for the advertisements and give "par-

ties" and still pay dividends. But at the same time and in all fairness, this latest publicity stunt will do little more than "raise" a laugh when applied to medical men. While written in a somewhat facetious fashion, back of the entire episode there is a serious attempt to gain the seal of approval from the profession by inducing a number of physicians to attend such a function and sign their names as having gone to see an x-ray film of the peristalsis of the colon, supposedly speeded up by this yeast, which it is alleged can even raise the unstripped fiber from a sluggish to an active state. And it is to that we object—to even the veiled suggestion that graduate physicians should deem it needful to go and watch the haustrations—to haustrate at a "Grocers' Party."

Utah County Puts Stop to Diphtheria—Completion of an intensive campaign of diphtheria immunization among children of school and preschool ages was announced in a report received Tuesday from the Utah County health unit.

The Utah County unit was organized through the State Board of Health and the International Health Board, and placed in charge of Dr. Lloyd L. Cullimore and Mrs. E. Reed, public health nurse.

In 1926 some work was done toward immunizing children against diphtheria, and this spring the campaigns were again resumed with the objective of inoculating all children possible.

The campaign has extended to include 43,536 inoculations given to a total of 13,512 people, according to Doctor Cullimore. Of these 4572 are residents in the Nebo district, 4140 in the Provo school district, and 4800 in the Alpine district. In the grade schools 93 per cent of the children were immunized. In the junior high 89 per cent, while in the senior high schools this dropped to 57 per cent. In the B. Y. U. 51 per cent of the high school students were reached, 95 per cent of the junior high school students were treated, with other treatments to 96 per cent of those in the training school and 12 per cent of the college students. It is estimated that but 18 per cent of the preschool children were immunized.

Epidemics of contagious diseases made it impossible for many to avail themselves of the opportunity, said Doctor Cullimore. Many did not realize the importance of protecting the preschool child and, with these two conditions prevailing, many preschool children were not reached. Not a single case was reported out of the 43,536 inoculations in which any bad result was noted, Doctor Cullimore asserted.

Medical news is at a standstill. Of course some of the men are going a-vacationing, some are going to conventions, some are going to Europe. All the component societies have held their last meeting for the spring and adjourned till fall. Next month we will print the proceedings of the State Association meet in full. Watch for that. We are going to have a wonderful program.

Minutes of the Salt Lake County Medical Society, Salt Lake City—The regular meeting of the Salt Lake County Medical Society was held in the assembly room of the Medical Arts Building, Monday, May 23, 1927.

Meeting called to order at 8:15 p. m. by Vice-President William H. Beer. Thirty-seven members and three visitors were present.

Minutes of the previous meeting were read and accepted without correction.

The society was extremely fortunate in having J. Marion Read of San Francisco, assistant clinical professor of medicine at Stanford University, as the speaker of the evening. He read a very interesting paper on "Clinical Interpretation of the Pulse Pressure" based on observations made of a thousand cases of thyrotoxicosis. He pointed out that the pulse pressure increased along with

the increase in metabolic rate. He also talked about the increased pulse pressure in patients with heart block.

This paper was discussed by C. Fred Wilcox and L. E. Viko.

Application for membership signed by P. V. Jamison was read.

Adjournment at 9:15 p. m.

M. M. CRITCHLOW, *Secretary*.

International Cancer Control Symposium Proceedings Ready for Distribution—A complete account of the proceedings of the International Symposium on Cancer Control, held at Lake Mohonk, September 20-24, 1926, will be ready for distribution the early part of June. This volume of some 360 pages will contain all the papers read at the symposium together with an account of the discussion. The following partial list of titles and authors indicates the scope of the volume:

The Value of Co-ordinated Effort Among Surgeons, Pathologists and Others in the Control of Cancer—Sir John Bland-Sutton, Bt., Vice-Chairman of the British Empire Cancer Campaign; President of the Royal College of Surgeons.

Cancer Education in England—Dr. W. Sampson Handley, F. R. C. S., Professor of Surgery and Pathology in the Royal College of Surgeons of England; Surgeon to the Middlesex Hospital, London.

The Organized Movement Against Cancer in France—Prof. Henri Hartmann, Director of the Anticancer Center of Paris; Professor of Surgery at the University of Paris.

The Organization and Practical Working of the Centers Against Cancer in France—Prof. Léon Bérard, Director of Anticancer Center at Lyons; Professor of Surgery at the University of Lyons.

The Need of Special Institutions for the Investigation and Treatment of Cancer as Compared with Other Methods of Dealing with Cancer Patients—Prof. T. Marie, Professor at the Faculty of Medicine and Pharmacy of Toulouse; Director of the Regional Anticancer Center of Toulouse.

The Campaign Against Cancer in Switzerland—Dr. Charles Dubois, President of the National Swiss League Against Cancer; Professor of Dermatology, University of Geneva.

Morbidity Statistics at the Anticancer Center of Geneva—Dr. Albert Reverdin, General Secretary and Treasurer of the Anticancer Center of Geneva; Member of Swiss Anticancer League.

The Anticancer Campaign in Belgium—Prof. J. Maisin, Professor at the University of Louvain; Director of the Cancer Institute of the University of Louvain.

Cancer in Denmark—Prof. Johannes Fibiger, Professor of Pathological Anatomy in the Faculty of Medicine at Copenhagen; President of the Committee of the Danish General Medical Association for Cancer Research.

The Movement in Italy for the Control of Cancer—Prof. Raffaele Bastianelli, Vice-President of the Italian League for the Control of Cancer; Associate Professor of Surgery, University of Rome.

The Organized Movement for the Control of Cancer in America—Dr. George A. Soper, Managing Director of the American Society for the Control of Cancer, New York.

The Evidence of the Value of Education in the Control of Cancer—Dr. Joseph Colt Bloodgood, Associate Professor of Surgery at Johns Hopkins Hospital, Baltimore.

The Prevention of Cancer—Dr. James Ewing, Professor of Pathology, Cornell University Medical School; Director of the Memorial Hospital, New York.

How We Should Regard the New Theories of the Origin of Cancer—Prof. Gustave Roussy, Professor at the Faculty of Medicine, University of Paris; Director of the Institute for Research and Treatment of Cancer at Villejuif for Suburban Paris.

The Tissue and Racial Specificities of Cancer—Dr. James A. Murray, F. R. S., Director of the Imperial Cancer Research Fund, London.

The Clinical Value of Certain Phases of Cancer Research—Dr. Francis Carter Wood, Professor of Clinical Pathology and Director of Institute for Cancer Research, Columbia University, New York.

MISCELLANY

COMMENT ON CURRENT ARTICLES

From time to time articles and items are printed in this journal which would seem worthy of special comment or, at least, to which the attention of readers might be called. That thought is what inspires the inauguration of this column, which, as occasion indicates, will make its appearance in this department of California and Western Medicine.

Hubert Work's Address—The California Medical Association was honored when Hubert Work, M.D., Secretary of the Department of the Interior and member of the Cabinet of President Coolidge, disarranged his itinerary so that he might be present and make an address at the fifty-sixth annual session of the California Medical Association.

His paper was printed in the June number of CALIFORNIA AND WESTERN MEDICINE, and those members who did not hear him or who have not yet read his address in its printed form, should make a memorandum that this is one of the things that they intend to do.

It was an illuminating exposition which Doctor Work gave of the manifold medical and public health activities which have gradually grown up in this Department of the Interior of our government; which department the great majority of citizens are prone to visualize as having to do with almost all things concerned with the internal development of our country other than those directly concerned with the practice of medicine or the protection of the public health.

To medical men it is a gratification to know that the chief of the United States Department of the Interior is a physician, an ex-president of the American Medical Association, and an ex-chairman of its House of Delegates; and a medical man who for many years was one of the stalwarts in organized medicine in America, and whose influence in the development of the American Medical Association to the place it now holds, was most valuable and efficient.

The medical profession of America can take pride in the record which Dr. Hubert Work is making for himself in his services to our country. It is to be regretted that there are not a much larger number of men of his type from among the members of our profession who are willing to accept civic responsibilities and show their capacity to perform capable service for the people. In European and South American countries, medical men seem to exercise a much larger influence in civic affairs than in the United States. All service which medical men render in these civic positions increases the respect which lay citizens hold concerning the efficiency and standards of medical education and of the healing profession.

We are glad that so outstanding an exponent of the high type of modern physician and surgeon has been selected in the person of Dr. Hubert Work for the important public duties which he is called upon to fulfill. We are also very happy to have the pleasure of having had him with us at our recent annual meeting; and appreciate his courtesy in making a special effort to be at Los Angeles on that occasion.

A Message from the Old South—It was good to get some of the atmosphere of the Old South in the person of Dr. Stuart McGuire of Richmond, Virginia, who was one of the guest speakers at the fifty-sixth annual session of the California Medical Association. The polished address which he delivered was replete with substance, and provocative of serious thought by all who hold dear the

highest interests of the healing art. What more fair method of approaching matters of discussion than through "a credit and a debit" column, as he did in his address, which was also printed in our June issue?

Doctor McGuire's pen picture of the status of medical education in America, the serious problems confronting recent graduates and also the communities which are or should be served by such graduates, was an excellent summary of those much-discussed questions. The remarks on the development of modern specialists, and of group clinics, were much to the point. The advantages and weaknesses of laboratory methods in diagnosis were pointed out; similarly his comments on the modern hospital, and particularly the danger of small hospitals not properly manned. The value of medical societies, the good that accrues from attendance at their meetings, the stimulating results of attendance at clinics of colleagues, the bigness of public health work in general, and of the United States Public Health Service in particular, were other topics which were given illuminating consideration. Doctor McGuire's paper is worthy of perusal not once, but several times, by all who would orientate themselves thoroughly on some of the major problems having to do with modern medicine, because these subjects are constantly coming up in our medical societies for consideration. Knowledge of actual facts will make for logical and effective action, when we are called upon to vote upon these matters.

C. M. A. Prize Essay of 1927—Several years ago the Council of the California Medical Association seriously discussed the desirability of awarding one or more research prizes to members of the profession of our state. It was hoped by such means to especially stimulate the younger members to carry on research studies, the results of which could be presented at the annual meetings. At the same time it was decided to give a nominal reward to the successful contestants as an expression of the appreciation of our Association.

The Committee on research prizes, when it reported this year to the Council, stated that its members felt that more publicity should be given to the fact that the California Medical Association offered such prizes, in the hope of securing a larger participation. The prizes are again offered for 1928. The secretary of the Association will be glad to give information thereon to all who write for same. By complying with conditions found on page 92 of this issue, members may enter a paper in the prize competition and submit the same article for place on a section program of the annual session.

At the fifty-sixth annual session the committee's recommendation to the Council that one of the research prizes be given to Dr. Emil Bogen of Los Angeles for his paper on "The Diagnosis of Drunkenness," was adopted. This paper was printed in the June issue of CALIFORNIA AND WESTERN MEDICINE.

The subject itself could be affirmed to be one of universal interest in this land where the Volstead Act obtains and gives so much trouble to the Government and to both its law-abiding and nonlaw-abiding citizens.

We take it that the research award was not based so much on the second paragraph of Doctor Bogen's paper, in which there is a somewhat classic ensemble of the symptoms resulting from overgreat ingestion of alcohol, as for and upon laboratory procedures that had been elaborated.

After the award had been granted, it was learned that the research was based largely upon "data secured by careful clinical examination of the first one hundred persons suspected of alcoholism who were brought to the Cincinnati General Hospital during the latter half of the

year 1926." It should be noted that the paper did not state whether or not the clinical symptoms and signs were different in that region of the country, nor whether the number of citizens in that suspected condition who went to the county hospitals in that section was greater than in other parts of the United States.

The methods of examination which were presented are a valuable summary of special procedure, old and new, which can be followed by those colleagues who by circumstances or other affiliation with law-enforcing agencies, have occasion to be called upon to make diagnoses in matters of this kind.

It seems a curious state of affairs, however, that in the days when our land is under the sway of a national prohibition law that special methods of research for the detection of acute alcoholic intoxication should be necessary; and that in the California Medical Association, one of the large state medical societies of America, the colleague who made a research on this question should have performed a service and produced a scientific work which very justly entitled him to the annual research prize in the year 1927.

Associated Fees of Physicians and Surgeons—"Associated Fees—Medical and Surgical" when properly presented and understood by patients should be, and are, from the standpoint of the ethical code of physician, quite proper. "Fee splittings," on the other hand, very justly are not.

The chairman of the section on general surgery at the recent annual meeting, Dr. Fred R. Fairchild of Woodland, showed real courage in taking what is in many ways so unpleasant a subject as the above topic for his opening address to the surgical section.

He was quite right in his contention that medical men, be they internists or surgeons, should each receive from their patients compensation in proper relative portion for the work actually done by each. The unfortunate mental attitude which many patients have on the subject of what constitutes a fair fee for an internist, and a fair fee for a surgeon, depends in good part, as Doctor Fairchild affirms, upon the fact that so many of the laity are willing to pay properly or generously only if the service rendered has been of a presumably spectacular nature, and of a kind that is mystifying to them. Perhaps the medical profession, and especially our surgical colleagues, are both in part to blame for this overemphasis which the laity so often place upon the value of services rendered by the knife in the operating room; as contrasted with their sense of appreciation for service rendered when the same is performed quietly in the laboratory or at the bedside, with all dramatic features lacking.

There is much merit in Doctor Fairchild's contention "that in all cases where an internist and a surgeon have cooperated, their fees should be associated; that is, that one statement should be rendered, the bill being so itemized as to show definitely the obligation to each man."

This subject is one that has a very intimate association with medical economics, because in the last analysis it has to do with the bread and butter equation of the great majority of physicians and surgeons. There can be no question but that evils have grown in this matter; and there are some customs and traditions in regard to these fees which undoubtedly need readjustment. That readjustment is certain to come in time, but it will come to us at an earlier day, and in a more happy manner, if the whole subject receives early and careful attention by the component county societies in our state. Serious thought on the points made by Doctor Fairchild will help in coming to the proper conclusions.

* In the original article it was erroneously stated that statistics were compiled from cases brought to the Los Angeles General Hospital.

NEWS

Specialist in Pathology Needed at Veterans' Hospital—The United States Veterans' Bureau Hospital at Knoxville, Iowa, is in need of a specialist in pathology. Applications for the examination for this position are now being received by the United States Civil Service Commission under its general announcement for medical officers (examination announcement No. 43).

The entrance salary is \$3800 a year. Advancement depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions. The highest salary paid to senior medical officers is \$6000 a year. The position of senior medical officer is seldom filled from a register of eligibles, but almost invariably by the promotion of medical officers already on duty.

Competitors will not be required to report for examination at any place, but will be rated on their education and training (30 per cent), and their experience (70 per cent).

Full information regarding requirements for entrance to the examination is given in examination announcement No. 43 which, together with application form 2600, may be obtained from the United States Civil Service Commission, Washington, D. C., the secretary of the United States Civil Service Board, Custom House, Boston, Mass., New York, N. Y., New Orleans, La., or St. Louis, Mo., or the secretary of the United States Civil Service Board, Post Office Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif., or Denver, Colo.

New Community Hospital at Redlands—Redlands is again to be congratulated, and can congratulate herself. She has "come across" with the money needed to build the new community hospital, and has made the grade in the time set. True, not quite the full amount has been brought in yet, but out of the \$225,000 cash sought, \$190,000 has been subscribed, and the executive committee has guaranteed to get the rest. . . .

And *The Facts* pauses just long enough to remark that largely through the efforts of one man the thing was done, in its early and most important stages. He is Dr. Gayle G. Moseley. Most people who thought about it and talked about it suggested that the enterprise be postponed a year. Doctor Moseley laid the foundation for present success with several weeks of devoted work, interviewing prominent people. He had the stage set and the proposition ready to go.

Here's to everybody concerned, and especially to Doctor Moseley.—*The Daily Facts* (Redlands).

Reprints of Hippocratic Oath—William J. Kerr, M. D., has had reprints of 500 copies of the Hippocratic Oath made for presentation by him to senior students of the University of California Medical School, San Francisco.

The reprints are reproduced on Kelmscott hand-made paper by Frederic W. Goudy, printer and letter-designer, of Marlborough-on-Hudson, New York, following his study at first hand of the beautiful letter-forms evolved by the stone-cutters of ancient Rome. The translation is taken from that made of the Works of Hippocrates by Francis Adams, LL. D., Surgeon; first published in 1849 by the Sydenham Society, London, in two volumes, octavo.

Medical Progress a la Shuman—One of the most thorough and readable reviews of medical progress during the past few decades appeared in the *Medical Times* of January of this year. Interesting because of its clear perspective and philosophic outlook, and because it was written by one of the most capable men today in internal medicine—John William Shuman, M. D., F. A. C. P., of Los Angeles. The Missouri Valley Medical Society was a heavy loser when Doctor Shuman went to Syria to take the chair of medicine in a college there. Los Angeles was the gainer when the world traveler surrendered his post and returned to the land of his birth. The old Missouri Valley Society has had in its membership some of

America's most brilliant lights, and whether death or removal has separated them, they still live; Shuman is one of them.—J. M. Bell, *Med. Herald*.

Western Branch of American Urological Association—The western branch of the American Urological Association is holding its 1927 session at Seattle, Washington, July 6. Clinics will be held at St. Vincent's Hospital, Portland, July 5; at the Medical-Dental Building, Seattle, July 6, and at the Vancouver General Hospital, Vancouver, July 7. Speakers on the general program are: Bernard G. Scholefield, Boston; William H. von Lackum, Rochester; W. G. Shultz, Tucson; Miley B. Wesson, San Francisco; Elmer Hess, Erie; Henry A. R. Kreutzmann, San Francisco; Herbert A. Rosenkranz, Los Angeles; William E. Stevens, San Francisco; Joseph Walker, Los Angeles; Harold L. Morris, Detroit; Charles P. Mathé, San Francisco; Wilbur B. Parker, Los Angeles; and G. Shearman Peterkin, Seattle.

Otological Society Meeting—The American Otological Society at its sixtieth meeting had installed an Institutional Acousticon, and individual instruments were wired to the seats of those who ordinarily have much difficulty in attending public meetings and getting any enjoyment because of deafness.

The other unusual event of the meeting was a demonstration of the Osiso by lantern slides. The Osiso is a new instrument which converts sound waves into visible images which are easily read by those educated in its use. It has been successfully used in the Central Institute for the Deaf at St. Louis, Missouri.

Special Course for General Practitioners in Physical Therapy—The Stanford Medical School announces to the physicians in California that Frank B. Granger, M.D., of Boston, Massachusetts, will conduct a one-week course in physical therapy from September 26 to 30, 1927.

This course will afford the physicians an opportunity to obtain, under ethical conditions and without any commercial connections, the latest and most authoritative developments of this branch of the therapeutic art from a recognized expert in this medical field.

Doctor Granger was director of physical therapy in the United States Army during the World War. At the present time he is physician-in-chief of the Department of Physical Therapeutics at the Boston City Hospital. Besides being instructor in physical therapeutics at the Harvard Medical School, and lecturer on the same subject at the Tufts Medical School, he is consultant to a number of hospitals, including the Boston Floating Hospital. He is a member of the Medical Council of the United States Veterans' Bureau and the Council of Physical Therapy of the American Medical Association.

The course will consist of lectures, demonstrations, the illustrative use of apparatus, and such clinics as can be fitted into the program. Special attention will be given to electrotherapy and the theoretical and practical application of such modalities as the galvanic, sinusoidal, faradic, static current, medical and surgical diathermy and the use of the ultra-violet ray.

It is proposed to devote each morning from 10 on, and each afternoon from 2 o'clock on, to the work of this course. The lectures and demonstrations will be conducted in Lane Hall, Stanford Medical School Building.

The course will be strictly limited to properly qualified licensed physicians and surgeons. A nominal fee of \$10 will be charged for this course. On payment of the fee physicians will receive a card of admission to the lecture room in which the course is conducted.

Registration for the full course will be received at the dean's office, Stanford Medical School, on or before noon, September 20. Requests for information or remittances to cover advance registration should be addressed to The Dean, Stanford Medical School, 2398 Sacramento Street, San Francisco. A check for advance registration should be accompanied by the physician's name and home address, the medical school from which he graduated, and the year of graduation.

The American Medical Association will hold its 1928 annual session at Minneapolis.

Sanitarium Adopts Group Insurance—The personnel of the Livermore Sanitarium are now enjoying the benefits of insurance under the group insurance plan, through negotiations just completed between the sanitarium management and the Travelers' Insurance Company of Hartford, Connecticut, through its representative, Thomas B. Smith.

The plan is cooperative in that the management provided a policy of \$500 for each employee, and the latter had the privilege of taking an additional amount based upon his earnings for which additional policy the sanitarium contributed a portion of the cost.

The policy gives the employees the advantage of a very low insurance cost. Increases in the premium rates as the employee grows older are met by the sanitarium, thus the employee will pay the same rate no matter how long the policy remains in force.

An interesting feature of the group insurance plan is that all employees irrespective of age or physical condition are accepted by the insurance company without medical examination. In addition to the death benefit the policy covers permanent total disability, and an employee leaving the organization has the privilege of securing an individual policy also without medical examination.

The sanitarium management says: "This plan is not paternalism or charity, but rather it is the fulfillment of a sincere desire to assist our group of workers in a material way and add to some extent to their peace of mind and security for the future as a just reward for their loyalty. It is hoped that this group insurance will foster and increase the spirit of cooperation and mutual goodwill, so essential in the performance of our daily tasks."

Summer Courses for Graduates in Medicine—The summer courses of the University of California Medical School in San Francisco opened on June 6, 1927, and closed July 2, 1927.

Thirty-seven graduates in medicine enrolled—twenty-one from California, four from Idaho, three from Washington, three from Oregon, two from Utah, two from Arizona, one from New Mexico, and one from Nevada.

The courses offered included General Medicine, Surgery, the specialties, and laboratory subjects.

University of California Medical School Notes—The following appointments, promotions, and resignations will become effective July 7, 1927:

Dr. Samuel S. Maxwell, professor of physiology, retires on August 4, 1927, and is appointed emeritus professor of physiology. Doctor Maxwell received the degree of Bachelor of Science from Amity College in 1886, Master of Science from Amity College in 1888, and Doctor of Philosophy from the University of Chicago in 1896. He came to the University of California in 1905, and was instructor in physiology from 1905 to 1907, assistant professor from 1907 to 1910, associate professor from 1910 to 1922, and professor from 1922 until his retirement.

Dr. James M. D. Olmsted has been appointed professor of physiology, vice Doctor Maxwell. Doctor Olmsted is now associate professor of physiology at the University of Toronto. He received the degree of Bachelor of Arts from Middlebury College in 1907, Bachelor of Arts from Oxford in 1911, Master of Arts from Oxford in 1914, and Master of Arts from Harvard University in 1918, and Doctor of Philosophy from Harvard in 1920.

APPOINTMENTS

Dr. Ian Maclaren Thompson has been appointed associate professor of anatomy, effective July 1, 1927. Doctor Thompson is at present assistant professor of anatomy at McGill University. He received the degree of B. Sc. from the University of Edinburgh in 1919, and the degrees of M.B. and Ch.B. from the University of Edinburgh in 1920.

William B. Faulkner, M.D., instructor in surgery.

George C. Hensel, A.B., M.D., instructor in orthopedic surgery.

Harry M. Kanner, M.D., instructor in obstetrics and gynecology.

Raymund J. Millzner, A.B., M.A., M.D., instructor in surgery.

PROMOTIONS

William J. Kerr, from associate professor of medicine to professor of medicine.

Howard C. Naffziger, from associate clinical professor of surgery to clinical professor of surgery.

Edward S. Sundstrom, from assistant professor of biochemistry to associate professor of biochemistry.

Olga Bridgman, from associate clinical professor of abnormal psychology to associate professor of psychology and pediatrics.

Hans Lisser, from assistant clinical professor of medicine to associate clinical professor of medicine.

Richard W. Harvey, from assistant clinical professor of neurology to associate clinical professor of neurology.

Velav H. Podstata, from assistant clinical professor of psychiatry to associate clinical professor of psychiatry.

Edward W. Twitchell, from assistant clinical professor of neurology to associate clinical professor of neurology.

Hiram E. Miller, from assistant clinical professor of dermatology to associate clinical professor of dermatology.

Mary E. Botsford, from assistant clinical professor of anesthesia to associate clinical professor of anesthesia.

Howard E. Ruggles, from assistant clinical professor of roentgenology to associate clinical professor of roentgenology.

Irwin C. Schumacher, from instructor in medicine to assistant professor of medicine.

Alfred H. Washburn, from instructor in pediatrics to assistant professor of pediatrics.

Eva C. Reid, from instructor in psychiatry to assistant clinical professor of psychiatry.

Laurence Taussig, from instructor in dermatology to assistant clinical professor of dermatology.

Montague S. Woolf, from instructor in surgery to assistant clinical professor of surgery.

Herbert S. Thomson, from instructor in surgery to assistant clinical professor of surgery.

Mary Kavanagh, from instructor in anesthesia to assistant clinical professor of anesthesia.

A. J. Salle from assistant in bacteriology to instructor in bacteriology.

Stacy R. Mettier, from assistant in pathology to instructor in pathology.

Thomas H. McGavack, from assistant in homeopathic materia medica to instructor in homeopathic materia medica.

Ottiwell W. Jones, Jr., from assistant in surgery to instructor in surgery.

Stanley H. Mentzer, from assistant in surgery to instructor in surgery.

John C. W. Taylor, from assistant in otorhinolaryngology to instructor in otorhinolaryngology.

Ernst Wolff, from assistant in pediatrics to instructor in pediatrics.

RESIGNATIONS

Goodwin L. Foster, assistant professor of biochemistry.

Guy W. Clark, assistant professor of pharmacology.

Lovell Langstroth, assistant clinical professor of medicine.

Harry I. Weil, instructor in medicine.

History of Medical Practice in the State of Illinois—Doctors who lived formerly in Illinois, or who are descendants of pioneer physicians of the "Illinois country" will hear with interest that Volume 1 of the "History of Medical Practice in the State of Illinois" is ready for delivery.

The history has been written under the supervision of a committee appointed by the Illinois State Medical Society as a commemoration of its seventy-fifth anniversary, but more especially to make a living tribute to those valiant men of the medical profession who played so able a part in the exploration, settlement and development of the Illinois country.

In this first volume of the history are set down events from the earliest available knowledge of conditions in the Illinois country, along through the days of the Aborigines, and commencing with the actual records when, in 1673, Father Marquette had medical attention in Chicago, up until the year 1850.

In the second volume (now in preparation), narration continues up until the present time. Future years will

bring other volumes, so that this history will be an ever virile monument to the men and incidents whom it would honor.

Research of years resulted in an opulent supply of material from which to compile this history, and has evidenced to an almost unbelievable degree the vital part played by physicians in every angle of the exploration, settlement and development of a country that is one of the richest and most influential sections of the richest country in the world.

It must be remembered that originally the Illinois country encompassed a territory far greater than the area now known as the states of Illinois, Wisconsin, Indiana, Missouri, Kentucky, and Iowa, as well as what is now Illinois, and even some sections of Ohio fell into that primitive epitome of the Illinois country. In the southern part of the state it was well into the nineteenth century before Missouri and Illinois ever acknowledged the natural divorce of interests made by the Mississippi River. Because of this, naturally enough, close interest in this history extends to physicians or to their descendants in practically every state in the Missouri valley or contiguous thereto.

Rare maps, unusual personal memorabilia and rare discretion in compilation, make this history of unique interest to doctors everywhere, and to many laymen.

This history of medical practice in the state of Illinois embodies, in the course of its narration, an interesting and illustrated digest of the early efforts of white settlers in Illinois, with specific allusion to the share in these tasks, performed by medical men. Included are portraits of rare interest, reproductions of historic documents, excerpts from diaries, personal letters, human reminiscences of days fraught with peril, filled with hope, and not devoid of humor, through a period of about 250 years. From the days of the "Chirurgeon" who attended Pére Marquette, through the massacres at Fort Dearborn, the years of Indian raids, down with the circuit-riding "saddle-bag" doctors, to these days of radium and radio, this history marches. Attics, family albums, safe deposit vaults, and state records have been ransacked to produce the material needed for this chronicle. Illinois holds today the honor of being the world's medical center. Progressive steps of this achievement, and its contributive factors such as hospitals, asylums, sanitariums and allied institutions and medical college are set forth in detail, both pictorial, documentary and narrative. In brief, this account epitomizes the almost unequaled growth of a community whose economic wealth is paralleled by its public health. Personal data of the men, of the organizations, including pioneer army and navy physicians and surgeons and local, county and district societies, schools and hospitals as well as of the Illinois State Medical Society itself; various internationally famous medical discoveries made by Illinois men; the state's contribution to the world of research; medical libraries and periodicals existent in Illinois; campaigns for medical protection against enemies of public health; details of the various Medical Practice Acts; state sanitation from the notable drainage canal and the supervision of food supplies, vital statistics; meetings, officers, policies and finances of the state society; all this and more in accurate transcription make this history a miniature encyclopedia of scientific advance and desirable and hitherto unavailable information.

The edition is limited. It will not be reprinted. A place in every physician's library is merited by this volume, both as a tribute to the men who blazed the trail for modern scientific medicine and as an ever present reminder and authority as to what is happening to medicine right in this state every day, so far as finance, discovery, legislation and public relations are concerned, and the men who are responsible for the heritage of trust for over two centuries and a half. Volume 1 is now ready. Volume 2 will follow soon. Orders may be sent to Committee on Medical History, Illinois State Medical Society, Medical and Dental Arts Building, 185 North Wabash Avenue, Chicago, Illinois, Charles J. Whalen, M.D., Chairman.

Walter G. Campbell will Head Food, Drug and Insecticide Administration—W. G. Campbell, director of regulatory work of the United States Department of Agriculture, will administer the work under the Food, Drug and Insecticide Administration, which takes form

on July 1, 1927, according to an announcement by Secretary of Agriculture Jardine. Dr. P. B. Dunbar, now assistant chief of the Bureau of Chemistry, will be assistant chief of the new administrative unit. This unit, created by an act of Congress, is charged with the enforcement of the Federal Food and Drugs Act, the Tea Inspection Act, the Insecticide and Fungicide Act, the Naval Stores Act, the Import Milk Act and the Caustic Poison Act.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D., Secretary

According to the Fullerton *News Tribune* of May 9, 1927, Dr. J. E. Baker of Corona, armed with a loaded revolver, was arrested by local police, who claimed him to be a motor maniac. "When arraigned before Justice of the Peace Halsey I. Spence, Baker pleaded guilty to charges of reckless driving and carrying concealed weapons. He declared he had been arrested many times before for violating the speed laws. He was fined \$200 and sentenced to twenty days in jail. . . . At police headquarters a large quantity of liquor was found in the medicine case. A box of cartridges and a loaded revolver were also found in the car. Baker was carrying a Los Angeles city physician's badge. The badge was declared bogus by the Los Angeles Police Department. . . ." It is reported that J. E. Baker, M. D., was recently sentenced to pay a fine of \$100 or serve fifty days in jail for violation of the State Poison Law.

An alleged attack upon Sidney T. Brooks, Pasadena physician, at the point of a gun, was quietly disposed of today when Mrs. L. O. Moore began serving sixty days in jail after pleading guilty to a misdemeanor. . . . Circumstances surrounding the attack have been veiled with much mystery. Mrs. Moore is said to have refused to pay a \$200 bill, demanding an appointment on a Pasadena street corner with the doctor. Anticipating trouble, the doctor was followed by two police officers. As the woman drew her gun the officers placed her under arrest. Moore was arrested a short distance away. . . .—*Los Angeles Record*, May 14, 1927.

Dr. Russell R. Burt, local surgeon, was acquitted yesterday by a jury in criminal court on a charge of having performed an illegal operation on a young woman. . . .—*San Diego Union*, April 22, 1927.

Further litigation over the death of Sally Lytton Howard of Pasadena, said to have been caused by application of an alleged poisonous face bleach, was promised today in a \$50,000 damage suit brought against Fannie Briggs Carr, Inc., by Horace G. Lytton. . . . Mrs. Howard died at her home at 3124 Pasadena Avenue last October 26, five days after her face assertedly had become swollen and burned by the poison.—*Los Angeles Record*, April 22, 1927. (Previous entries January and February, 1927.)

Doctor Crowell, Indian herb doctor of Walkerton, appeared before Magistrate Creasor in the Police Court here, charged with illegal practice of medicine. . . .—*Los Angeles Examiner*, April 27, 1927. (Press dispatch Markdale.)

According to the report of our Investigation Department, on June 14, 1927, complaints were filed before Police Judge Rice at Modesto charging W. D. Cowan with practicing medicine without a license and also the obtaining of money by false pretenses, these complaints growing out of Cowan's connection with the so-called Folco Hospital Association. According to our reports, citizens in the vicinity of Modesto have been mulct out of some \$50,000 in the sale of stock in the Folco Hospital Association, a Nevada corporation, upon the representation of Cowan that the corporation had on deposit with the Secretary of State of Nevada the sum of \$250,000 cash to secure all future stock sales and which, according to our reports, is false. It is reported that Alfred Bach,

mentioned in "News Items" of August and September, 1926, was recently in Modesto, alleged to be connected with either Cowan or the Folco Hospital Association; that both Cowan and Folco have a record in the Criminal Identification Bureau. Up until late afternoon of June 14 local authorities at Modesto were unable to obtain service of the warrant upon Cowan, it being understood that he took his departure from Modesto shortly after the commencement of the investigation in question. It is also interesting to note that some \$6000 was returned to three of the "investors" after our investigation was commenced.

"Dr." G. H. Curtis, arrested here several days ago by the Police on a charge of vagrancy, appeared before Judge Cecil S. Johnson in the Police Court and was given a thirty-day suspended sentence. He was ordered to leave the city on pain of having to serve the term. Investigation at the County Identification Bureau showed that Curtis was arrested in Sacramento in 1914 on a charge in connection with the passing of fictitious checks. No disposition of the case appears in the records. He is said to have declared at that time that his name was Lawrence W. Hartman. In this city, when he arrived here about ten days ago, he worked on the sympathies of a number of doctors and secured medical attention at St. Joseph's Hospital and at Clark's Sanitarium. He also secured a quantity of dental attention. . . . The police here doubt Curtis' claim to the title of "Doctor," and believe that his credentials are faked. He claims to be a graduate of the University of Calcutta, India, and to have practiced in Shanghai, China.—*Stockton Record*, April 13, 1927.

According to a press dispatch dated Berlin, April 16, published in the New York *Times* of April 17, 1927, "American academic degrees are being offered wholesale in Germany at prices ranging from \$300 up." The ambiguous advertisement appearing in several papers and magazines announces that the titles Doctor of Merchandising, or philosophy, civics, dentistry, etc., can be quickly procured without examinations. Applicants answering the advertisement receive a glowing prospectus signed "Ernst Leuchtman, Baron von Reichenau, Director of the Dusseldorf High School for Economics, Delegate to the National Eclectic Institute of the United States of America, Corresponding Professor and Doctor of Philosophy of the National Eclectic Institute. . . . The candidates are assured that no work or study is required. . . . Delivery of a diploma is promised within eight weeks after first payment. . . . Candidates are requested to guarantee the payment of \$150 in American currency. . . . The number of victims may be large on account of the fact that many Germans still have a hankering for high-sounding appendages to their names."

According to the reports of our Special Agent, Laura Donoho recently pleaded guilty in Los Angeles to a charge of violation of the Medical Practice Act and was sentenced to pay a fine of \$500, sentence suspended on condition that she does not violate the law for a period of five years.

Reports continue to come in of the theft of medicine cases from the automobiles of doctors in different portions of the state, the narcotics having been removed from those cases that have been recovered.

Dr. Davis Grisso, Oakland physician, who has been sought since April 19 in an investigation into the death of Mrs. Theresa Soares, walked into the Oakland morgue yesterday during the inquest into the case. A short time later the coroner's jury found that the "woman died as the result of shock and presumably anesthesia, and in all belief death occurred during the performance of a criminal operation by Davis Grisso." Doctor Grisso was charged with responsibility for her death by the verdict. . . . Mrs. Soares, wife of Anthony Soares, a truck driver of 2021 East Twentieth Street, Oakland, died in Doctor Grisso's office in the Bacon Building, Oakland, on the night of April 18. No report of her death was made until she had been embalmed by W. M. Malliday in the employ of the undertaking firm of Hanrahan and Wadsworth. . . . (Oakland *Times*, April 29, 1927.) The records of the Board of Medical Examiners show that

Davis Grisso's license to practice in the state of California was revoked October 18, 1923, since which time reports are that he has continued to practice, despite information from the legal department of the Board of Medical Examiners that the courts have sustained the Board in the revocation of Doctor Grisso's license. (Previous reference in "News Items," January and February, 1926; January and March, 1927.)

Special Agent Albert Carter recently reported that H. M. Grannell, who claimed to be a graduate of the Pacific Medical College, Los Angeles, 1916, since which time he has practiced in Mexico, recently came to the attention of our department in connection with some prescription blanks reading: "M. Grannell, M. D., 3817 East Fifth Street, Los Angeles, California," said blanks showing the name Dittman Drug Company, 3680 East Fourth Street, at Dittman (Los Angeles). So far as the records show, Doctor Grannell is not licensed in any state or territory of the United States, nor does his name appear on the records of the Pacific Medical College compiled by the Board of Medical Examiners for the past several years. The Pacific Medical College is one of the institutions prominently featured in the diploma mill exposé of 1924. (Previous entries, CALIFORNIA AND WESTERN MEDICINE, January, 1926, and January, 1927.)

Dr. J. A. Hadley, a practicing physician in Arcata, was recently arrested on a charge of murder in the first degree in connection with the death of Louise Baxendale, a 19-year-old Oakland girl, who, according to the Arcata Union of April 14, 1927, died as the result of an illegal operation performed by Hadley in the Vaissade Building. The case will go to trial on June 20. Doctor Hadley has been cited to appear before the Board of Medical Examiners on June 28 to show cause why his license to practice in the state of California should not be revoked.

According to a report of Special Agent Carter, a complaint was recently filed in the Municipal Court of Long Beach charging Abbie L. Hurd with violation of the Medical Practice Act. "She has, according to her own statement, been practicing medicine for many years, using mostly herbs in her treatments.

Special Agent Carter reports that on April 18, 1927, a complaint was filed in Los Angeles, charging S. I. Kimbro with violation of the Medical Practice Act, relating that "Prof. S. I. Kimbro is an old offender, having been convicted by a jury in the Los Angeles Police Court on March 5, 1925, and sentenced by Judge Fredrickson to pay a fine of \$100 or serve sixty days in the city jail, the jail sentence being served after he had given notice of appeal and failed to file same." The report further relates, in reference to the recent complaint, "One patient, John Mackay of 315 Normandie Court, Redlands, California, who is now at the Hotel Cecil, Los Angeles, says that he went to Kimbro for treatment on January 15, 1927, and that Kimbro injured him in his first examination to such an extent that he has been forced to remain in Los Angeles and under the care of two physicians ever since. From another of his patients he secured \$1000 in cash by giving a chattel mortgage on the autormalizer, as he calls his oscillating couch or table. . . ."

Dr. Elmer C. Litle, convicted of violation of the State Narcotic Law, was sentenced to three years in the county jail yesterday by Superior Judge Craig. A motion for a retrial was denied before sentence was passed. Counsel for the physician gave oral notice that an appeal would be taken.—*Los Angeles Times*, April 30, 1927.

According to report of our Special Agent, Matthew Galt Platt on June 9, 1927, pleaded guilty to a violation of the Medical Practice Act in Los Angeles and was sentenced to serve sixty days in the county jail, said sentence being thereupon suspended for two years on condition that defendant does not violate the Medical Practice Act during the period of probation. The records show that Doctor Platt, a practicing physician in another state, came to California on or about December, 1926, and placed a penciled card on the door of the Santa Fe Springs Emergency Hospital, referring to himself as Dr. M. G. Platt,

surgeon, although at the time of so doing he did not hold a license entitling him to practice in this state.

"Pleading guilty to two counts of an indictment charging him with forging narcotic prescriptions, Dr. William Jules Poll, former head of the Tujunga Sanitarium, was given a two-year suspended penitentiary sentence when he appeared before Federal Judge Henning yesterday. Doctor Poll was paroled to Dr. E. H. Anthony, government physician, after the latter had testified that he was convinced Doctor Poll was permanently cured of the drug habit. Doctor Poll admitted he had been a narcotic addict and had forged prescriptions to keep himself supplied with the drug." (Previous entry, "News Items," November, 1926; March, 1927.)

Dr. Alanson M. Pond, mentioned in "News Items" of December, 1926, March and April, 1927, and now a voluntary patient at Patton State Hospital under commitment of two years for treatment as a narcotic addict, has been cited to appear before the Board of Medical Examiners on June 28 to show cause why his reciprocity license to practice as a physician and surgeon in the state of California should not be revoked.

William Shore, M. D., Ventura physician, mentioned in "News Items" of February and March, 1927, has been cited to appear before the Board of Medical Examiners at the regular meeting to be held in San Francisco, June 28, to show cause why his license to practice in California should not be revoked.

Marcus Simpson, who not long since advertised in the Hollywood papers calling himself "king of drugless doctors" and that he could cure heart and kidney troubles in ten minutes and make tubercular lungs normal in three days, was found guilty by a jury in Los Angeles, and on June 2, 1927, sentenced by Judge William Fredrickson to pay a fine of \$200 or serve ninety days in the city jail, and paid the fine, according to report from our Special Agent Carter.

According to report of our Investigation Department, "Dr. George N. Stockwell of Ventura, California, was arrested Monday, March 14, on a narcotic charge by J. M. Ferguson of the State Board of Pharmacy. Mr. Ferguson states that they found nearly two ounces of bootleg morphin in Doctor Stockwell's possession in addition to getting a sale on him." (Previous entry, May, 1927.)

Admitting that he called himself Doctor in violation of the State Medical Licensing Act, E. O. Tilburne today filed an application for probation in Superior Judge Edmonds' court. Advertising matter used by the defendant, agent for a health belt, represented him as "Dr." Tilburne, the charges allege . . . (Los Angeles *Herald*, May 17, 1927.) (Previous entries, February and March, 1927.)

Walter J. Wentzel, M. D., Hollywood physician, mentioned in "News Items" of April, 1927, as involved in some narcotic difficulties, has been cited to appear before the Board of Medical Examiners June 28, 1927, to show cause why his license to practice in the state of California should not be revoked.

Because a jury made the unusual mistake of finding a defendant guilty of a crime with which he was not charged, Dr. W. E. Williams today is free of serious charges. Found guilty of manslaughter in connection with the death of pretty Evelyn Frances Taylor, University of Southern California co-ed, following an illegal operation it was charged he performed upon her, Doctor Williams stood before Superior Judge Charles Burnell to hear charges against him dismissed. "We cannot try Doctor Williams for murder again," E. J. Dennison, chief of the District Attorney's Homicide Department, said, "because the jury found him guilty of manslaughter. He was charged with murder originally, but he has been once in jeopardy, and it would be impossible to convict him of the lighter charge of manslaughter." (Los Angeles *Record*, May 17, 1927.) (Previous entries "News Items," April and May, 1927.)

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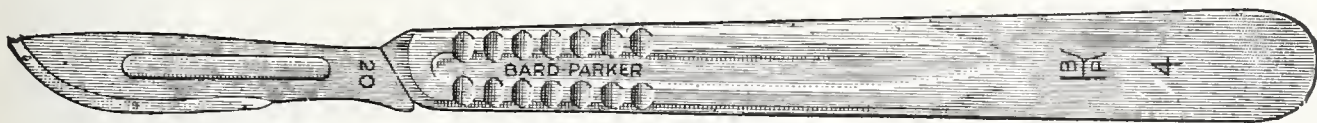
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BOOK REVIEWS

This column is conducted solely in the interests of California and Western Medicine readers. Critical comment, favorable and unfavorable, purely from the standpoint of the interests of the medical reader, will be made about books selected from the larger number acknowledged in the Books Received column. The advertising columns are open to book publishers who wish to make additional statements about their publications.

The Life of Sir James Mackenzie.

The country doctor or city practitioner without hospital or university connections who has a genuine interest in his science and desire to help advance it can read nothing more inspiring than the life of James Mackenzie. Wilson's¹ recent biography is first of all a high tribute to the fine personal qualities of this great Scottish physician by a devoted disciple. It is also an illuminating commentary on the intellectual snobbishness of medical authorities of the day.

With former antecedents, without money, and opposed by his own feeling of inferiority, Mackenzie obtained at Edinburgh the schooling requisite for general practice. He was not a "good student" and had to compensate in hard work for what he lacked in aptitude. The hard work in pursuit of knowledge he then continued for twenty-six years, in addition to, or rather together with, an arduous general practice in a small English town. The motive was love of knowledge pure and simple—knowledge which would make him a better small town doctor. There was no thought of becoming a specialist with fame and financial reward.

At first he sought facts from professors and books; and, to his amazement, found that most of the things he wanted to know could not be obtained from them. Thus he was impelled to study his own clinical material by the long process of careful recording of symptoms and other clinical data in order to discover from the subsequent course of events what they meant. His special study of the heart began after the unexpected fatal heart failure of one of his patients during labor. In self-reproach for not having foreseen the danger, he began to study heart signs, especially the irregularities, of which little was then known. Arterial tracings with the Dudgeon sphy-

mograph alone gave little information. Crude tracings of venous waves, made by sticking straws over the jugular and allowing them to write on a smoked paper moved by hand, proved unintelligible. But when finally he secured a physiological kymograph and a Marey tambour to connect with a funnel over the jugular, and then obtained venous and arterial waves synchronously recorded, the light began to appear. And from the data which he thus gradually accumulated in the following years grew the material for his famous books.

How the prophet's honor became first recognized abroad and by foreigners was finally "brought home" to England is interestingly told by Wilson. When London finally received Mackenzie it did so lavishly; but against his will it received him as a heart specialist and as the inventor of the polygraph. He longed for acceptance of his main doctrine, of which his heart studies he regarded only as an example, the doctrine that clinical knowledge can be advanced best by purely clinical study, especially the study of early signs of diseases and prolonged observation of their later course. It was in pursuance of this ideal of study that he finally renounced his lucrative London practice to work again in a small town. There (St. Andrews) after his death remains the James Mackenzie Institute of Clinical Research.

Mr. Wilson's book may be questioned in a few of its details, and its style would be more attractive to medical readers if its technical descriptions of Mackenzie's work were not written for the layman's comprehension. Nevertheless it is a sympathetic and, in the main, an accurate portrait of a very great man.

Modern Medicine, Its Theory and Practice. In original contributions by American and foreign authors. Edited by Sir William Osler. Third edition thoroughly revised. Re-edited by Thomas McCrae and Elmer H. Funk. Three volumes. 1925-27. Philadelphia and New York: Lea and Febiger.

The rapid advance of medicine in recent years makes it necessary for the physician to have some general storehouse of information to which he can turn in order rapidly to orient himself in regard to the clinical problems which come up in his daily work. This need has found its expression in the appearance of numerous systems of medicine, and one approaches with interest the new edition of Osler and McCrae which first appeared in 1907. From the standpoint of literary merit, as well as sound presentation of the natural history of disease, this work, so well re-edited by Doctor McCrae and Doctor Funk, has already won for itself a prominent place comparable to that occupied twenty-five years ago by the Nothnagal system in Germany and the Albutt system in England.

All of the articles are creditable, and many are out-

(Continued on Page 109)

¹ The Beloved Physician, Sir James Mackenzie, by R. M. Wilson. London. 1926.

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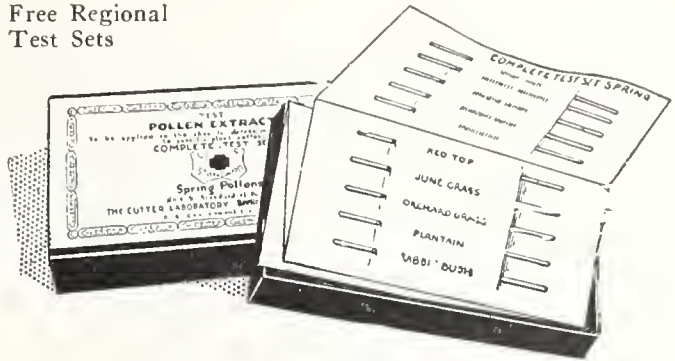
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BOOK REVIEWS

(Continued from Page 106)

standing. We may mention particularly in Volume I the article on Typhoid Fever by McCrae, which we think is by far the best presentation of this disease to be found in textbook form. The triad of articles on tuberculosis by Baldwin, Krause, and Brown represents the point of view of the most outstanding American tuberculographers. In the second volume, Rheumatic Fever by Poynton; Dysentery by Strong; Malaria by Craig, and Yellow Fever by the late James Carroll, are worthy of special note. In the third volume, the introductory article on Metabolism by Eugene F. DuBois, is a masterful presentation; and the Diseases of the Digestive System, a difficult subject from the standpoint of didactic treatment, is well discussed.

On the whole, one cannot escape the feeling that, allowing for the inherent limitations of any system of medicine, the Osler and McCrae stands out as a conservative but efficient achievement.

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Ampoules Ephedrine Hydrochloride (Swan-Myers). 0.05 Gm., 1 cc.—Each ampoule contains 0.05 Gm. of Ephedrine Hydrochloride (Swan-Myers) (*Journal A. M. A.*, April 16, 1927, p. 1235), in 1 cc. Swan-Myers Co., Indianapolis.

Are Pregnancy and Parturition Normal Functions?

For some fifteen years Dr. Joseph B. De Lee has been urging the point of view that the function of child-bearing, while it may have been intended by nature at the beginning as a harmless process, has become, in the modern civilized woman, an event in which many factors may be pathologic. The topic formed the subject also of a statement presented last year before the congress held in Dublin as a part of the Coombe centenary celebration. If the ovum is considered an endoparasite with which the host must live in symbiosis for nine months, and if it is realized that the impregnated ovum brings into the body of the host blood qualities not previously there, the student of biology will understand that reactions long since recognized as partaking of pathogenicity take place in the pregnant woman. Studies of the metabolism of the pregnant woman, of her lessened resistance to some infections, for example epidemic influenza, of her increased susceptibility to some other conditions, as hyperthyroidism or goiter, indicate that her body is certainly not the same as in the nonparturient state except for the presence of the fetus. In spite of the best possible care, a large number of women still die or become permanently disabled as the result of childbirth. The estimates of obstetricians as to the incidence of severe pathologic processes in childbirth vary from 10 per cent to the statement accredited to Douglas that "the parous woman, *ipso facto*, is apt to die." If progress is to be made in the attack on the death rate of woman associated with childbirth there must be a revision of "the notorious disappreciation and disesteem of obstetrics" that exists at present.—*Journal A. M. A.*

A fountain pen of large capacity is a satisfactory container for a solution of 2 per cent mercurochrome, according to Dr. Roland H. Stubbs, school medical inspector of Waterford. By the use of the self-filling lever it is instantly available for local application. The solution has proved to be a satisfactory red ink.—*Health News*, New York State Department of Health.

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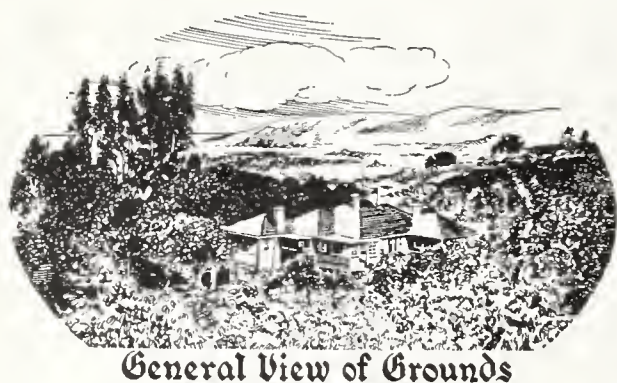
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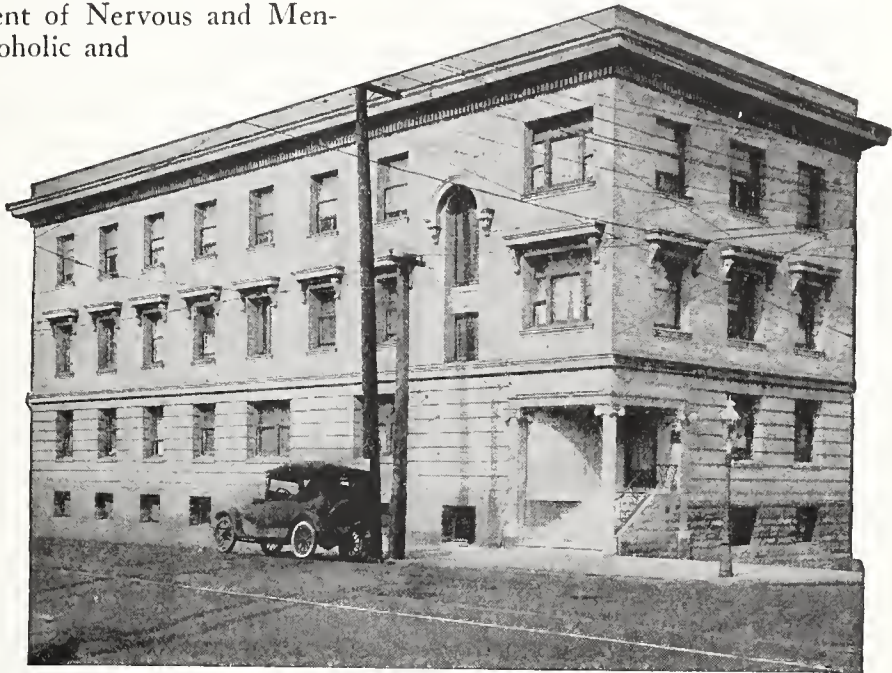
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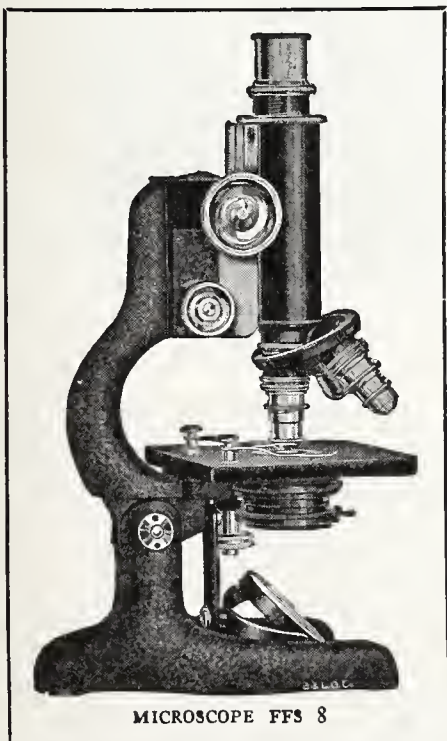
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The Flapper Mother—Since the beginning of the bold, free days in which the terms of "sheik" and "flapper" became common, a generation of these so-called flappers are becoming the mothers of the next generation. What kind of a mother does the flapper make?

View the situation from any point and it is not discouraging. If one wants to examine closely the trend of infant morbidity and mortality, he will see that these rates continue to decline in spite of flapper motherhood.

But just take a look at the flapper mother herself, in public or in private, and an even more favorable picture presents itself. At the annual Baby Welfare Conference, hundreds of babies are examined. Many of these mothers in general appearance or make-up, dress, etc., could pass for the flapper type, but there is nothing in their care of the child to suggest the least flippancy. These girl mothers—for they do retain their girlhood appearance far beyond the years when their grandmothers lost it—are the best generation of mothers the world has even known, viewed from the health standpoint.

The young mother of today takes a sensible and scientific view of raising babies that is most commendable. So let us take our hats off to the flapper mother, and forget our worry over what a terrible future she is forecasting.—*Dayton Health Bulletin.*

Self-Defense of Animals—A herd of fifteen chamois successfully defended themselves against a mass attack by five eagles in the Bavarian mountains, according to hunters who witnessed the battle through field glasses, says the *New York Times*. Grouping their young in the middle of the herd the plucky little animals warded off the talons of the birds of prey for half an hour by swift and sure strokes of their fore legs. The birds failing in their aerial attack, lighted and tried a massed assault on the ground, only to find the defense of the chamois impregnable. After a period of truce the eagles again renewed the onslaught, but were repulsed by the lightning slashes of the chamois' hoofs. The manner of the defense leads the hunters to believe that the intelligent animals were trained by the herd leaders in the art of self-defense against these birds of prey which are their most dangerous foes.—*M. J. and Record.*



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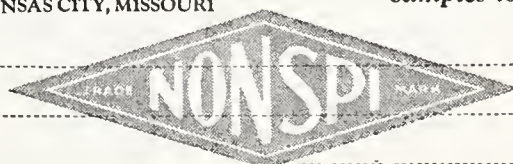
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Vaccination—What Doctor Worcester has induced the corporation overseers and numerous faculties of Harvard University to do about vaccination is indeed enough of itself to justify his appointment as professor of hygiene on the Oliver foundation.

The vote apparently requires a certificate satisfactory to him, saying nothing about sworn statements that given individuals are not proper subjects for the procedure.

It is undoubtedly true, as aggressively stated at the last legislative hearing on the subject by the attorney for the Antis, that thousands (or possibly hundreds) of unvaccinated children are now in the public schools, but this gentleman who boasted that his children were there, that they never had been vaccinated and never would be, must now add Harvard to Smith, Wellesley and Mount Holyoke as places where he cannot send them to complete their education.

Nor is in my opinion the day too far distant when no college in the state will accept these unprotected and potentially dangerous individuals within their gates.

What the University of California, a state university, has just fought through the courts can of course easily be provided for by our privately managed institutions of higher learning, and we need at each of them but a physician of the Worcester type to raise his voice and use his influence to put that greatly to be desired regulation into effect. Amherst, Williamstown, Boston, and Worcester physicians take notice.—Correspondence, Editorial Department, *Boston M. and S. J.*

Evidently the author of "The Cheerful Cherub," a syndicated daily soliloquy, has read about and appreciates the value of sunlight in building resistance to disease and in preventing rickets, for the *Schnectady Gazette* for March 26 carried the following:

I wish I had a sun-baked hill
Where I could go and lie for days
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—*Health News*, New York State Department of Health.



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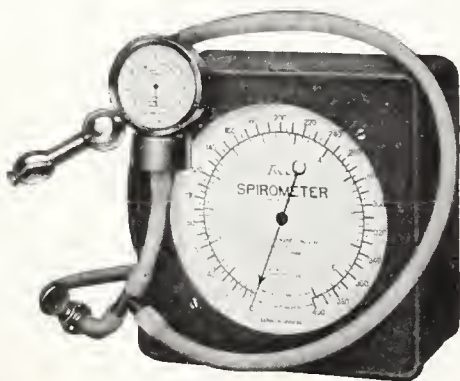
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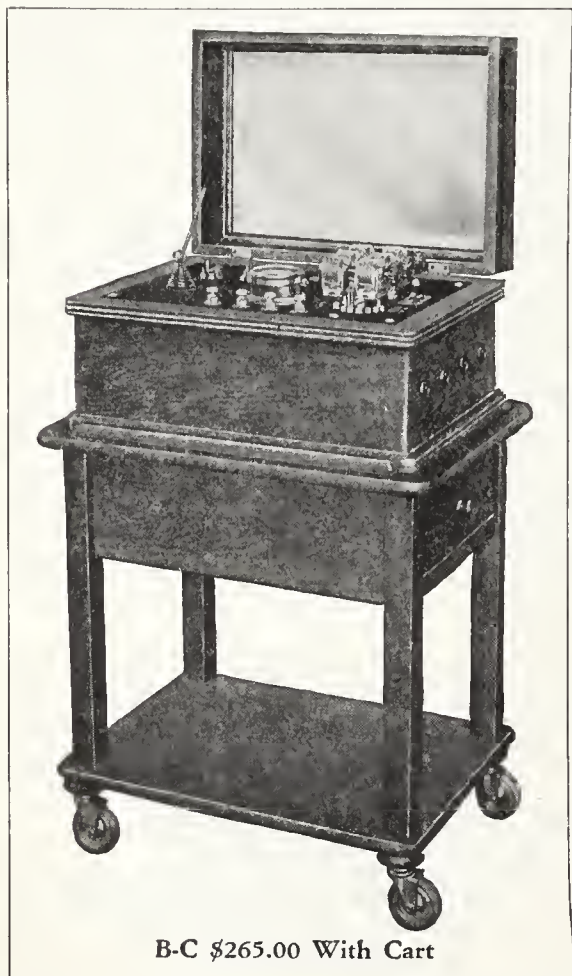
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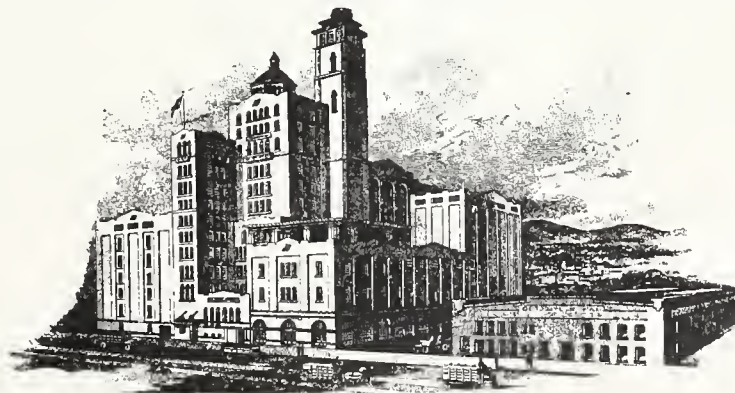
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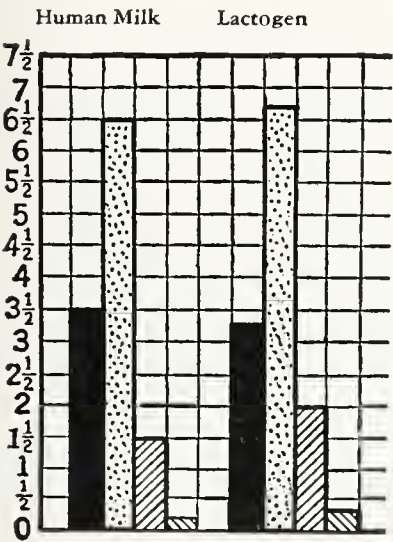
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—John Lovett Morse, A. M., M. D., Professor of Pediatrics, Harvard Medical School, “CLINICAL PEDIATRICS,” 1926.
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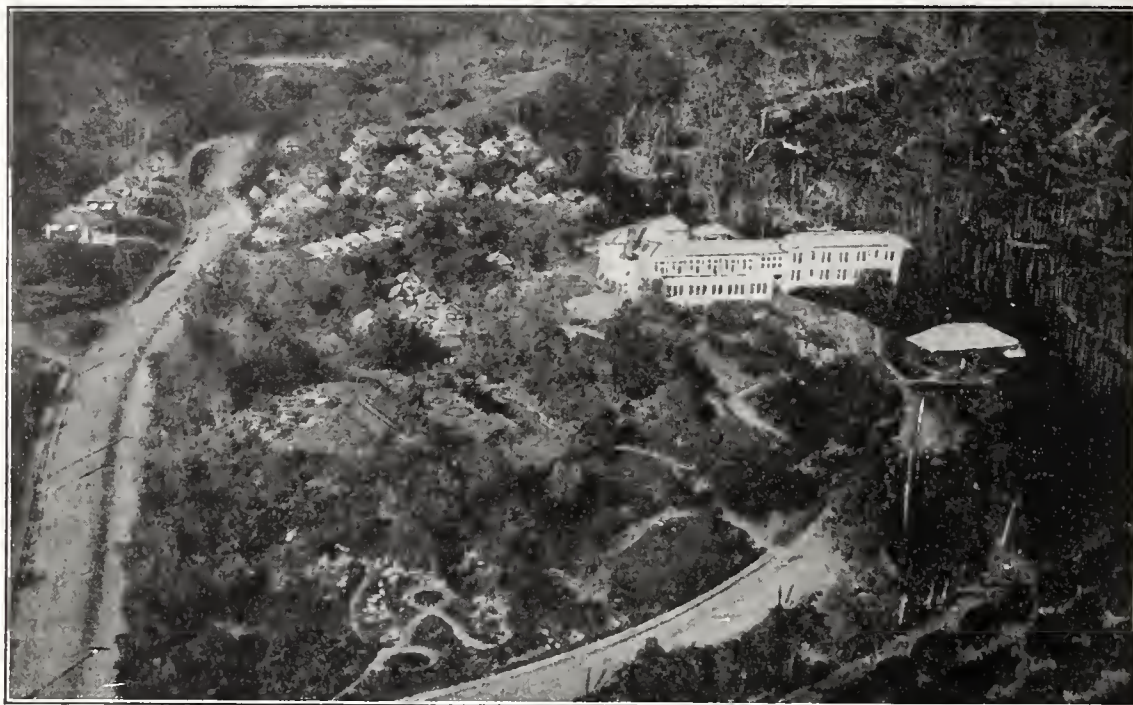


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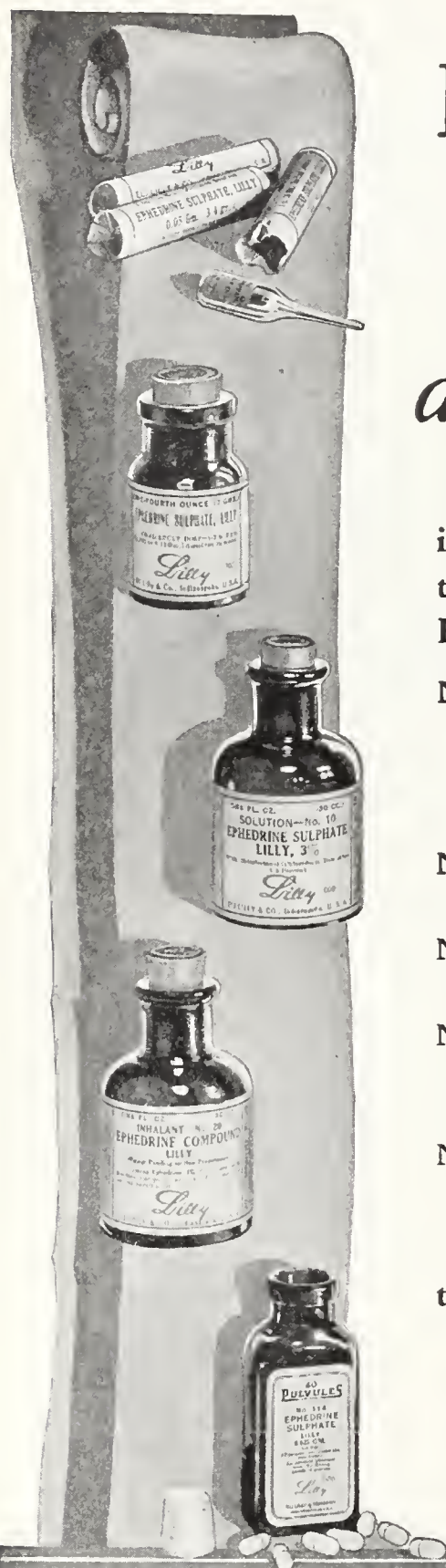
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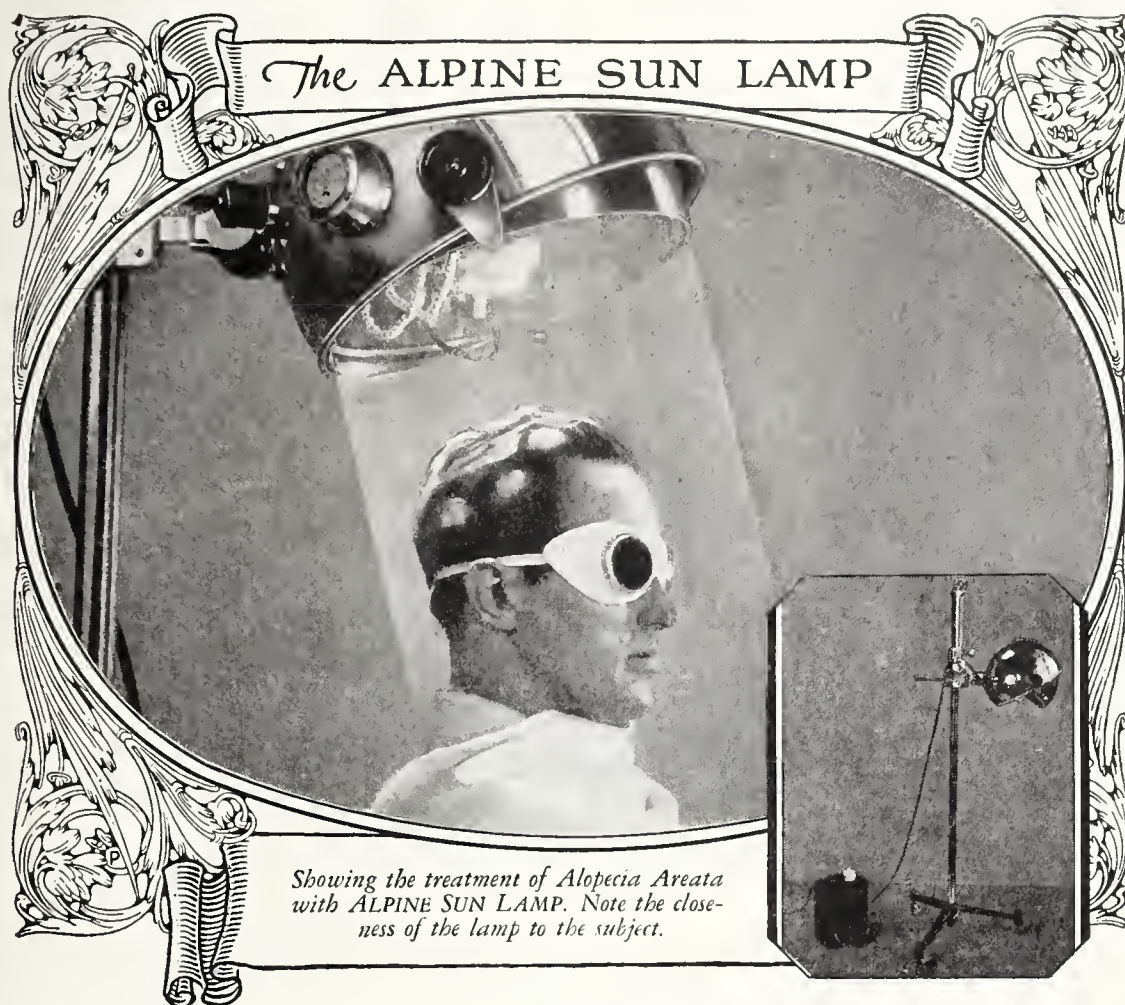
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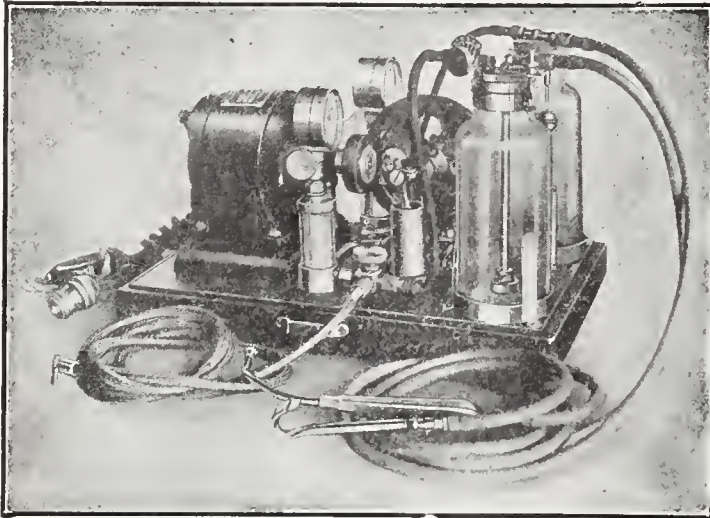
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Graves' Disease—The three factors which J. Marion Read, San Francisco, considers to be largely responsible for retarding progress along the path which will ultimately end in revelation of the etiology and pathogenesis of Graves' disease, are, first, the premature acceptance of theories and their accompanying terminologies which replace "Graves' disease" by other names carrying implications that its pathogenesis is known; second, a misconception of the part played by iodine in the normal and pathologic physiology of the thyroid; third, an uncritical acquiescence to the post hoc, ergo propter hoc argument in evaluating surgical and nonsurgical treatment. The first factor probably will continue to operate and still longer postpone discovery of the cause of Graves' disease. Four of the most frequently used synonyms—hyperthyroidism, dysthyroidism, exophthalmic goiter and hyperplastic toxic goiter—are discussed here because each of them implies a knowledge of etiology which does not exist, yet the implication imparts a feeling of confidence as unwarranted as the term itself. Although the work of Marine and others has established the relationship existing between iodine and the histologic structure of the thyroid, knowledge of the manner in which iodine acts in reducing the toxic manifestations of thyroid disease is still lacking. But it was not ignorance of its mode of operation which prevented iodine from becoming established as a valuable medicament in this disease. The reason is found in the fact that iodine did not fit into the theories of etiology and pathologic physiology then in vogue. In fact, according to these theories, iodine was thought to be contraindicated. Nor is it probable that the exhibition of iodine in Graves' disease would have become as widespread as it now is but for the work of Kendall, Marine and others which permitted the elaboration of theories in which iodine played a necessary rôle. The third potent factor in discouraging further inquiry into the etiology of Graves' disease is the seeming success which has attended its treatment by the roentgen ray and surgery. Practice proves theory right and theory vindicates practice. The theoretical considerations have been largely

abandoned, however, in the case of surgery, for it has developed that the degree to which "hyperthyroidism" is checked bears little relation to the amount of tissue removed. The frequency of recurrences led the surgeons to advise the removal of more thyroid tissue. Each year the word has gone forth to remove more and still more tissue until it was considered that the ideal had been reached in a subtotal thyroidectomy. But now we learn that a subtotal thyroidectomy is inadequate and is being replaced by an attempt to remove all of the gland which can safely be removed, afterward placing reliance on replacement therapy for cure. Here is an instance wherein practice based on theory ultimately shows the theory to be wrong. The only sound interpretation which can be placed on the results of thyroidectomy is that, when the organ becomes diseased beyond possibility of recovering its normal function, amputation becomes advisable. It is significant that these therapeutic results have not afforded a clue to the cause of Graves' disease. This in itself is enough to raise the suspicion that none of the current theories supporting present therapy will ultimately prove true. One cannot disparage the utility of theories in arriving at the ultimate truth, but care should be exercised lest they impede progress and obscure truth.—*Journal A. M. A.*

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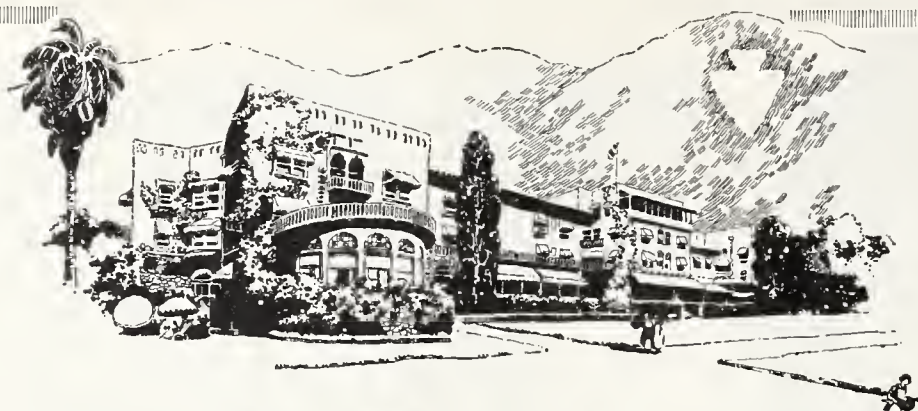
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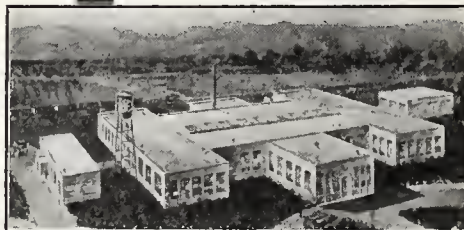
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Resignation of Dr. George H. Simmons—The Council on Pharmacy and Chemistry has accepted with regret the resignation of Dr. George H. Simmons from the chairmanship of the Council. Since 1905 Doctor Simmons has guided the activities of the Council. Before the establishment of the Council, the standard and quality of drugs were left entirely to the manufacturer, except for products in the Pharmacopeia. The rise of the proprietary medicine industry and the numerous attempts made to foist on the public and on the medical profession products without merit led to repeated calls from the House of Delegates of the American Medical Association for an official body to aid in overcoming this evil. As general manager, in February, 1905, Doctor Simmons first presented to the Board of Trustees of the American Medical Association a plan for the organization of such a body, and in accordance with their decision, arranged for the first meeting, February 11, 1905. Under his guidance the Council has carried forward its work, and today still stands as the only medium to which the physician may turn for the unbiased truth regarding proprietary medicines. In accepting his resignation, the Council extended him a vote of thanks, not only on its own behalf, but also on behalf of all the medical profession of this country.—*Journal A. M. A.*, May 7, 1927, p. 1483.

Report on Window Glass Substitutes—The Council on Physical Therapy publishes a report of work carried

out under its auspices, to determine the efficiency of certain window glass substitutes for transmitting the antirachitic rays of sunlight. The transmission of ultra-violet rays was determined both by spectroscopic analysis and by the biologic effects of the transmitted light on the growth of chickens. The following materials were tested: Vitaglass (transparent), Cel-O-Glass, Flexo-O-Glass, and Corning Glass. Vitaglass and Corning Glass are stated to be true glasses. Celoglass is composed of wire-mesh screen filled with an apparently celluloidinous material. Flexoglass is a thin, fairly loosely woven cloth treated with a paraffin-like substance. The Vitaglass and the Celoglass transmitted a large percentage of the sun's ultra-violet rays, since the chickens reared behind these glasses showed similar development as those which received ultra-violet radiation from the artificial source. Chickens which received the sunlight through Flexoglass did not show the same growth as did the irradiated controls, but did gain more rapidly than those receiving sunlight through window glass. The Corning Glass was received too late for the biologic test, but from the spectroscopic measurements it is evident that this glass is equal to the best of those tests in its ability to transmit the antirachitic rays of the sun. The study leads to the conclusion that there are now available materials for glazing windows which do not possess the fault of window glass in excluding the health-giving rays of sunlight.—*Journal A. M. A.*, May 14, 1927, p. 1562.

Poisonous Effects of Oxygen—In animal experiments a concentration of oxygen of more than 70 per cent of one atmosphere may produce symptoms of oxygen want. The manifestations are drowsiness, anorexia, loss of weight, dyspnea, cyanosis and, finally, death. Postmortem examination showed that diffuse hemorrhagic edema had developed, with such injury to the diffusion membrane of the lung that, in spite of the increased head of pres-

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sure, the arterial blood remained unsaturated. With this knowledge of the effects of overrich oxygen mixtures, oxygen may be used to greater advantage therapeutically.—*Journal A. M. A.*, May 14, 1927, p. 1570.

Injection Treatment of Varicose Veins—In the face of growing enthusiasm for the treatment by injection of varicose veins of the leg and hemorrhoids, it is well to consider a recent report of a death after injection treatment of varicose veins. A man, aged 60, who had dilated veins of the left leg, was treated at short intervals with five injections of a 20 per cent sodium chloride solution. Serious symptoms developed, but the patient overcame these. However, about one month after the injection treatment he died suddenly of embolism of the pulmonary artery. One case proves nothing, but one disaster is an indication for caution.—*Journal A. M. A.*, May 14, 1927, p. 1571.

Effects of Cinchophen—Cinchophen is not directly depressant to the heart muscle. The circulatory collapse produced by the toxic doses is due to effect on the vagus and vasomotor centers. It occasionally produces local irritation in the digestive tract, as indicated by anorexia, nausea, and other digestive disturbance. There may be scarlatiniform, urticarial or purpurial skin eruptions, and edema with fever. In large doses it may produce albuminuria, though less so than salicylate. The administration of sodium bicarbonate is believed to lessen gastric irritation. A liberal amount of water should always be given along with cinchophen. The use of neochinchophen obviates the gastric irritation and lessens the possibility of toxic effects.—*Journal A. M. A.*, May 14, 1927, p. 1586.

Prevention of Scarlet Fever—The ideal procedure in the case of a child exposed to scarlet fever is to make a skin test to determine whether the child is susceptible or immune to scarlet fever and at the same time make nose and throat cultures to learn whether the child is infected

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with hemolytic streptococci. If the skin test is entirely negative, further preventive measures are not indicated unless the cultures show the presence of hemolytic streptococci, in which case the child should be kept away from other susceptible children. In case the skin test is positive, the next step depends on the results of the nose and throat cultures. If these are negative and further exposure can be avoided, active immunization with toxin should be begun at once. If the skin test and the nose and throat cultures are positive, the administration of a prophylactic dose of scarlet fever antitoxin is justified.—*Journal A. M. A.*, May 14, 1927, p. 1587.

Felsol—In the advertising of the American Felsol Company, Felsol is claimed to have the following composition: "Metozin 0.9 (containing Phenazon 0.25, Anilipyrin 0.4, Jodopyrin 0.25), caffein 0.1, digitalis and strophanthus glycosides 0.0015 and the alkaloid of lobelia

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inflata 0.005." Felsol is a typical illustration of an irrational shotgun mixture. One of the claimed ingredients, metozin, is stated to contain phenazon (antipyrine), anilipyrin (a mixture of antipyrine and acetanilid) and iodo-pyrin (a compound of antipyrine and iodine). In addition to these multiple antipyretic ingredients, Felsol is claimed to contain four other active drugs. The advertising refers to Felsol as a "harmless remedy" which may be given "for any kind of bronchial or cardiac asthma, without the necessity on the part of the physician to embark on long theoretical considerations as to the underlying cause of the attack." A product that contains preparations of digitalis, strophanthus and lobelia is not a "harmless" remedy. The recommendation for the indiscriminate use of this product is to be strongly condemned. A recent circular shows that the firm is increasing the danger of indiscriminate use by exploiting it directly to the public.—*Journal A. M. A.*, May 28, 1927, p. 1750.

Scripps Institution of Oceanography—Governor Young has signed a bill which creates a biologic reserve along the seafont of the Scripps Institution of Oceanography of the University of California at La Jolla. The new law prevents the collection of and fishing for marine life to a mean low tide depth of 6 feet. It was enacted to protect the abalones, lobsters, mussels, and other kinds of marine life from the increasing number of persons who take these animals of the sea for food, which in the last few years has threatened the destruction of the seafont for collection purposes.—*J. A. M. A.*

Germs, says the United States Public Health Service, are usually a hand to mouth affair. Better wash up.—*Sanitary Bulletin*, Buffalo Department of Health.

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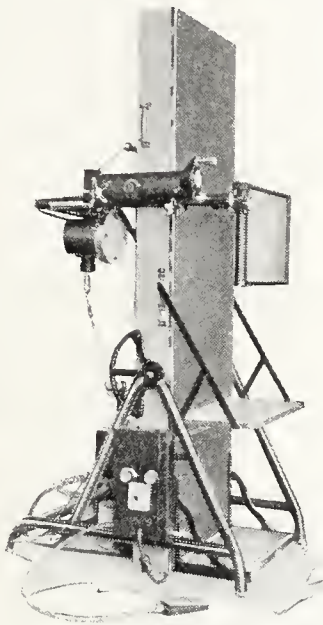
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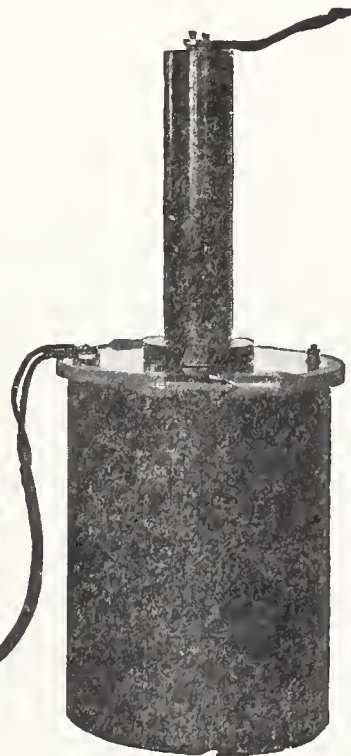
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Hygiene of the Sixteenth Century—In the case of

the Puritan-Calvinist Dutch it was good form to wash one's hands frequently, one's feet very seldom, one's head never. The washing of his feet was so extraordinary an event in the life of Pepys that he marked it down in his diary as having occurred on May 30, 1663. A great event in 1649 was the coming to Paris of a Russian prince to have his teeth cleaned.

The kings of France had no bathrooms or washstands, and seldom washed at all. In 1870 a student in the theological school of Leipzig University was not allowed to pass his examinations for the doctor's degree because of his modernism, which consisted in washing his whole body; it was whispered that the miscreant actually took baths. A Belgian medical authority, in the eighteenth century, advised that if bathing is too difficult an undertaking, people ought to put on clean linen at least once every six weeks. It will be seen from the foregoing that we are in an advanced state of sanitary evolution today and that there is no reason for pessimism regarding the matter of public hygiene.—California State Board of Health Weekly Bulletin.

Haldane's Nephew Submits to Vivisection—Viscount Haldane, in a recent debate in the House of Lords, said that he knew a man who voluntarily submitted to a vivisection experiment which could not be made under an anesthetic and which was not allowed to be made on animals. He did not reveal the man's name. The *Daily Mail* recently announced that the man was Viscount Haldane's nephew, J. B. S. Haldane, a lecturer in biochemistry at Cambridge University.

The experiment was conducted by Professor Fraser of St. Bartholomew's Hospital in London, and had as its purpose the production in Mr. Haldane of a condition of acidosis, an acidic state of the blood occurring in diabetes.

The acidosis having been established, Professor Fraser took blood from Mr. Haldane's femoral artery and was able to determine the exact change in the blood's alkalinity. The details of the experiment will be published.

Mr. Haldane had previously tried without success to produce acidosis in himself by swallowing various acids.

He is the son of John Scott Haldane, a widely known scientist, who himself has given blood for analysis after breathing quantities of carbonic acid.

J. B. S. Haldane has experimented upon himself many times at the risk of his own life in attempting to eliminate disease. He ate ounces of ammonium chloride to prove its utility in lockjaw, and thus has saved the lives of thousands of children. He pedalled a bicycle in an airtight glass case until he collapsed. He was one of the first to test gas masks under actual war conditions.

He is an expert on chemical warfare and his book, "Daedalus, or Science and the Future," published in 1924, attracted world-wide attention. In "Daedalus" he predicted that scientific experiments would bring about the abolition of disease, which, he said, would make death a "physiological event like sleep." He also predicted that scientists would learn to create human beings in the laboratory, doing away with birth.

During the war he fought in France and in Mesopotamia and was gassed.—*New York Times*.

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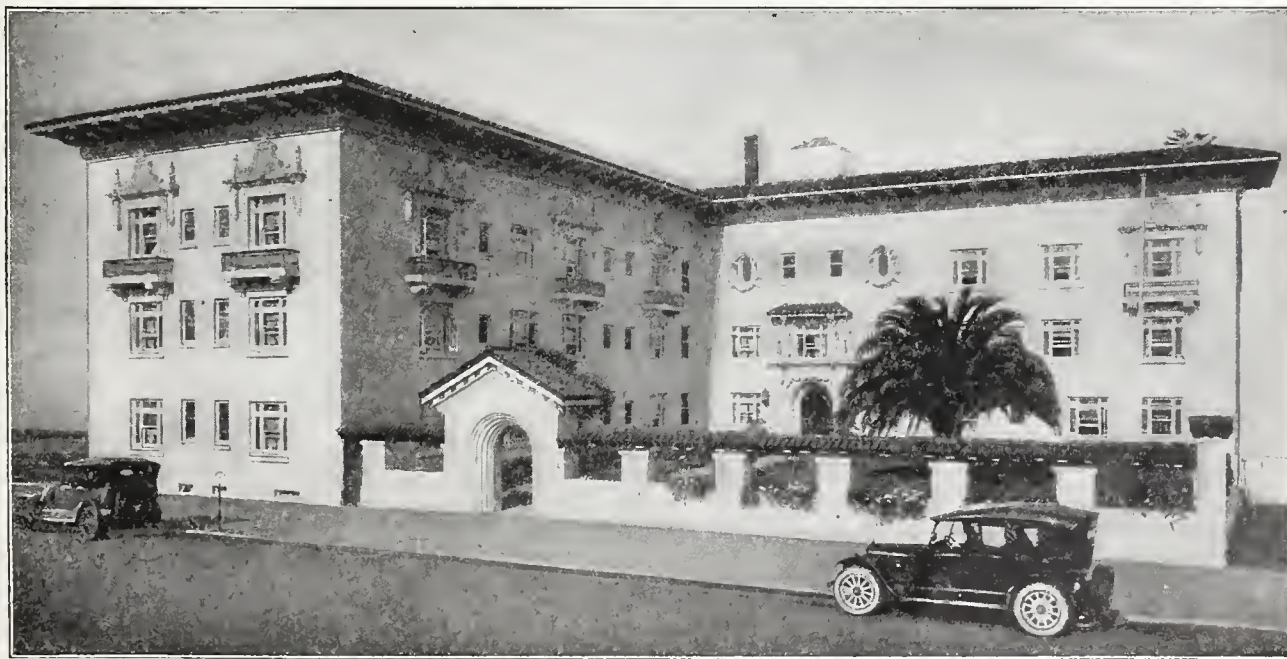
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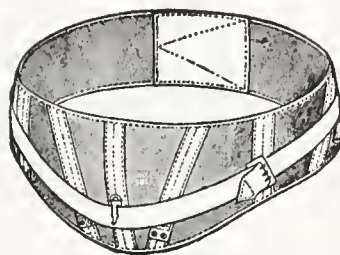
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Care of Cripples in Sweden—There are two features of orthopaedics in Sweden that deserve special attention. The first is the high standard of the manipulative methods and the plaster, and brace work. The conservative methods are seen at their best, and in their greatest range. The second feature is the national organization for the care of cripples. The system has a place for every cripple. The rich, the poor, the young and the old, the institutional as well as the ambulatory cripple all find care and relief under the system. No one is neglected. Arrangements are made for patients from the remotest districts to come to the clinics. Patients who need treatment after long periods of time, even a lifetime, have the opportunity of receiving it. The underlying principle of all care is to prevent the making of a cripple wherever possible, otherwise to diminish his invalidism to the minimum by orthopaedic treatment, education and vocational training. In a country the size of and with the economic condition of Sweden, the system in use works out to the advantage of the cripples, the profession and the state in general.—Emil D. Hauser, *Journal of Bone and Joint Surgery*.

Editors Back the Doctors—Editors of the United States call their family physicians when they or members of their family are ill, rather than cultists of other types of healers, according to the results of a recent investigation. Questionnaires were sent to 7000 of the leading American newspaper editors by the Research Division of the Publishers' Syndicate Corporation of New York, and returns were made by 2696. Only 103 indicated their preference for cultists, none listed healers of other types, and 2593 pinned their faith to the family physician. In other words, more than 96 per cent of these editors stand four-square in their support of the medical profession. This may be one of the reasons—it even may be the reason—why so great an increase of medical news, sound articles on health and habits of living, etc., has been manifest in the press in the last few years.—*Ohio Health News*.



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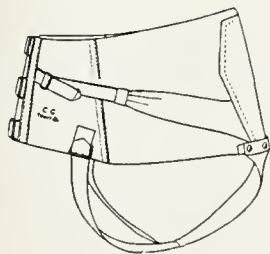
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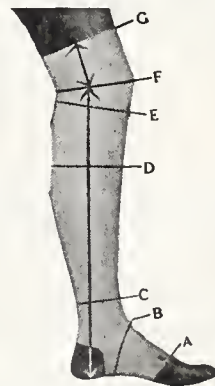


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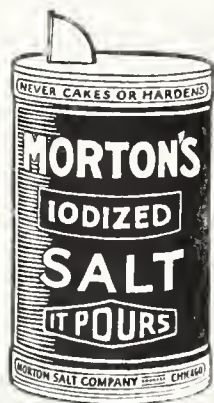
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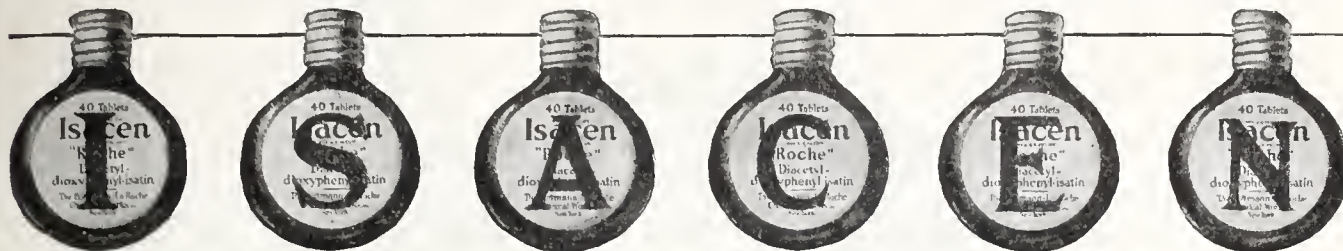
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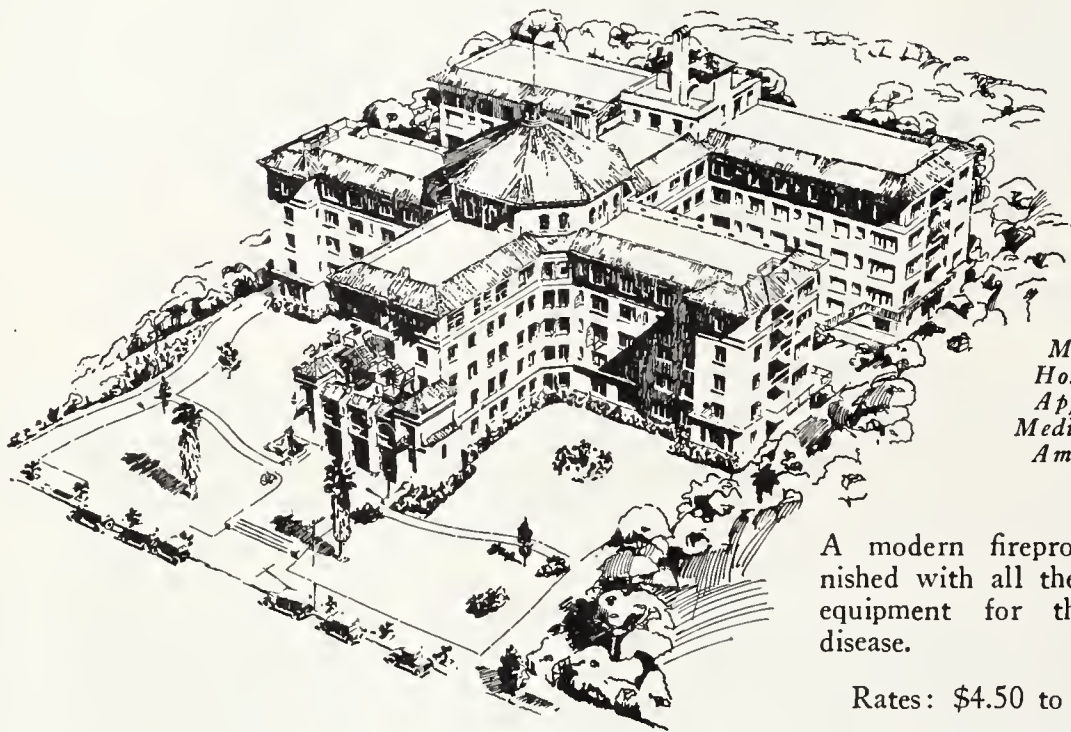
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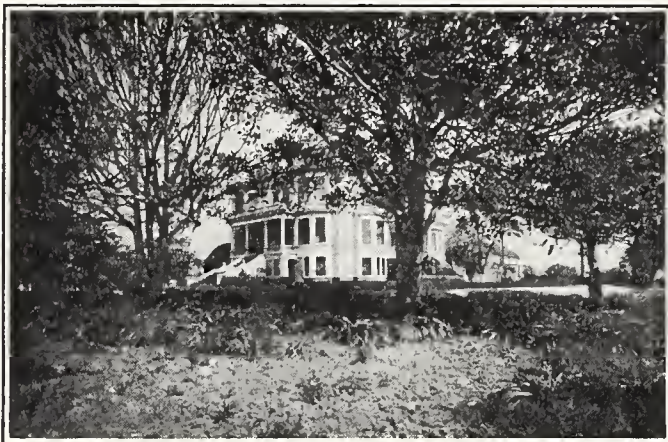
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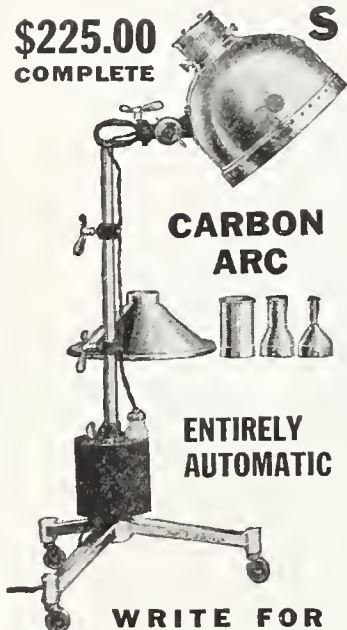
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associated with a tendency to vomiting and the adminis-
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thetic does not cure or relieve the hiccup. The action of
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by holding the nose was described by me in this Journal
ten years ago.—*Medical Journal of Australia.*

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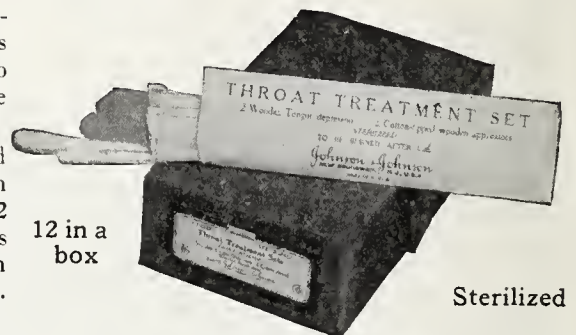
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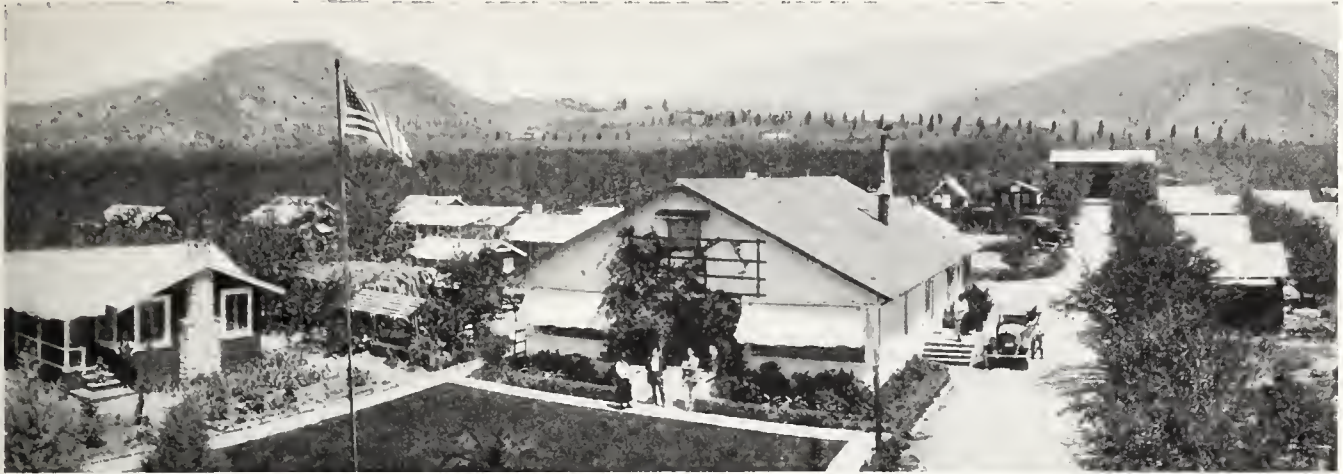
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An official tells of a country laborer who, on his way to work one morning, called at the office of vital statistics and made known his wish to register his wife's death.

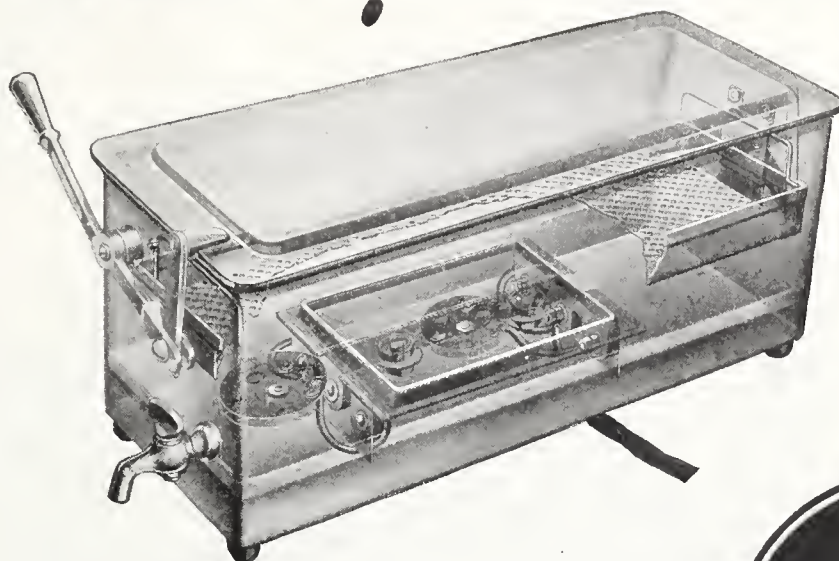
When the clerk asked the date of the demise, the man said:

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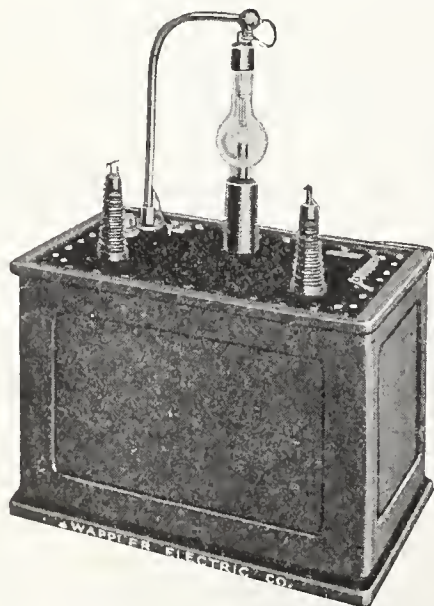
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The Doctor Looks at Hobbies—Recently there has been published a volume by one of our own profession recounting the literary efforts of the medical profession. The book itself is an attractive and valuable addition to our publications but, more than that, it represents the avocation of one of our most distinguished members and brings to mind the old saying that everyone should have a hobby. There is probably nothing that tends more to keep one young, open-minded and mentally alert than a hobby. No group of professional men need the advantages accruing from a hobby more than the doctors. It doesn't matter nearly as much what the hobby is as it does that you have a hobby; let the hobby be collection of postage stamps, etchings, antique furniture or butterflies; or let the avocation be a study of early American history or anthropology or magic, or hunting, fishing or travel. To have such an intense interest in something outside of the routine work of the day that is wholesome, that brings new contacts and widens the mental horizon is a real benefit to every physician. It gives us a play-thing when our working days are over; it need not be an expensive hobby, and in many cases is often made an ultimate source of revenue. The single track mind wears out early, is narrow and tends to lead to a pessimistic outlook on life. It behooves us all to get a hobby, develop it and receive dividends from it in the form of health and happiness.—*Rhode Island Medical Journal*.

It's good to have money and the things that money can buy; but it's good, too, to check up once in a while and make sure you haven't lost the things that money can't buy.—George Horace Lorimer.

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"For all of us," replied Gertrude.—From *Children, the Magazine for Parents*.

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THE INCIDENCE AND TREATMENT OF THE COMPLICATIONS OF CHRONIC GASTRIC ULCER*

By DONALD C. BALFOUR, M. D.
Rochester, Minnesota

CHRONIC gastric ulcer is one of the most important of the surgical lesions of the stomach and duodenum, but is relatively rare, only 1.7 per cent of operations for intraabdominal disease being for gastric ulcer. It was formerly taught that gastric ulcer occurred as frequently as duodenal ulcer, but the surgical treatment of peptic ulcer has shown that the ratio of gastric ulcer to duodenal ulcer has become steadily less until now the ratio is 1:10. The incidence of gastric ulcer in males and females is approximately the same as that of duodenal ulcer, about 4:1. The average age of patients operated on for gastric ulcer is 47 years, for duodenal ulcer 43, and the average age at the onset of symptoms is 39 years for gastric ulcer and 32 years for duodenal ulcer.

The basic principle of the successful treatment of chronic gastric ulcer is that it is a surgical disease. It is true that cure without operation is possible in the early stages of the disease. Robertson and Hargis, in 2000 postmortem examinations, found 141 gastric ulcers of all types of which 20 per cent were healed. Ulcers that penetrate to the serosa and become attached to adjacent structures heal with great difficulty because such attachments interfere with the contraction which is necessary to bring about the approximation of the edges. Caylor, in a study of gastric ulcers excised at operation, has shown that their healing parallels the healing in experimentally produced ulcers in animals as demonstrated by Mann; that is, the chief factor is the formation in the base of the ulcer of a plug of granulation tissue with an epithelial layer of single flat cells growing from the margin of the lesion to cover the granulation tissue. Morton¹ has shown by a series of experiments that the rapidity and the completeness of healing vary with the site of the lesion. For instance, if the mucosa is injured experimentally healing is most rapid along the greater curvature and most retarded on, or near, the lesser curvature, thus demonstrating one reason for the frequency with which chronic ulcers are found in the region of the lesser curvature of the stomach. Although it is true that ulcers in the early stage may, and do, heal, it is also true that they may pro-

gress beyond the point where healing is possible under our present methods of nonsurgical treatment. The disease has then become chronic in most cases, and can be cured permanently only by surgical measures. The majority of gastric ulcers seen by the surgeon are chronic; known methods of nonsurgical treatment have failed, and as a rule complications are present.

The usual complications of gastric ulcer, encountered at operation, are hemorrhage, obstruction, perforation, malignant degeneration, and hour-glass deformity. In the aggregate these complications occur in 67.3 per cent of the cases. All are agreed that surgical procedures are the only effective means of dealing with these complications; only under the most exceptional circumstances are they contraindicated.

HEMORRHAGE

The indications for operation in cases of gastric ulcer complicated by hemorrhage are positive. The complication occurs in about 25 per cent of the cases. Hematemesis alone occurs in 28 per cent, and melena in only 10 per cent; both melena and hematemesis were reported in 62 per cent. Symptoms had existed for an average period of eight years before the first hemorrhage, but in some cases a hemorrhage was the first indication of the lesion. The possibility of malignant change is greater in ulcers that have been associated with bleeding than in those that have not, and the danger of serious or fatal consequences directly or indirectly due to hemorrhage in benign lesions is greater than the risk of operation, so that quite apart from the other symptoms of the ulcer operation is indicated. The optimal time for operation is after the patient has recovered from the immediate effects of the hemorrhage. Experience with these cases has led me to adhere to the practice of avoiding operation during the time of an initial hemorrhage. Patients are kept under close observation and, after small transfusions have replaced the blood lost and the hemoglobin percentage is raised to 40 or more, operation is performed. In some cases in which slow oozing from the ulcer may persist (which suggests malignant change) it is not advisable to delay; the operation should be performed immediately after the first transfusion. If necessary transfusion should also follow the operation. There are special surgical indications in such cases. First, the ulcer should be removed or destroyed by the cautery whenever feasible. Secondly, the entire stomach, duodenum, spleen, liver, gall bladder, and appendix should be carefully examined to make certain that no other lesion or complication exists which might be a factor in the bleeding and thus interfere with an otherwise good result. It is not always possible, of course, to remove the ulcer, and an indirect operation only

* Read before the California Medical Association at the Fifty-Sixth Annual Session, April 25-28, 1927.

1. Morton, C. B.: Observations on peptic ulcer. I. A method of producing chronic gastric ulcer: A consideration of etiology. II. A roentgenologic study of experimental chronic ulcer. III. Healing of experimental peptic ulcer after gastroenterostomy, *Ann. Surg.*, 1927, lxxxv, 207-238.

may be all that can be accomplished. Such operation, namely gastroenterostomy or jejunostomy, affords at least partial protection against further hemorrhage and is sufficient in about 50 per cent of the cases to permit the ulcer to heal, and relieve the patient from symptoms.

OBSTRUCTION

In about 15 per cent of gastric ulcers coming to operation obstruction of some degree can be demonstrated. The degree may vary from temporary interference to motility, which can only be detected by fluoroscopic examination and of which the patient is not cognizant, to almost complete obstruction from lesions at or near the outlet of the stomach. The situation of the ulcer does not necessarily, however, determine the amount of obstruction present, for there may be marked retention in cases in which the pylorus is not involved and the ulcer situated at some distance from it. The most important clinical fact in connection with obstruction is that occasionally toxemia, which can be accurately recognized, measured, and adequately controlled, is sometimes associated. Such toxemia is manifested in chemical changes in the blood, that is, in a decrease in the chlorides, an increase in the urea, and an increase in the carbon dioxide combining power of the plasma. It is most important to correct such changes before operation is carried out. This can be done by the administration of an adequate amount of physiologic sodium chloride solution and 10 per cent of glucose solution. As a part of this treatment of the toxemia of obstruction systematic lavage of the stomach enables the organ to regain its tone partly and, therefore, to contract so that if an extensive operation is indicated it can be much more safely performed because of the better condition of the tissues. However, no definite rule can be followed as to the type of operation in such cases since certain patients are in such poor condition and the obstruction is so marked that relief of the obstruction should be the primary purpose and removal of the lesion reserved until the patient's condition is sufficiently improved to permit it.

PERFORATION

In cases of acute perforation of gastric ulcer the immediate necessity is to save the patient's life. Any method of closing the perforation which will serve the purpose is satisfactory, by suture, a plug of omentum, or resection of the ulcer. The question of combining gastroenterostomy with the closure rests chiefly on the condition of the patient and the time which has elapsed since the perforation occurred. During the first six hours almost any operation can be carried out as safely as though there were no perforation. After this period, however, closure of the perforation alone is the wisest procedure.

In cases of subacute perforation, that is, if the perforation is protected but it is obvious that recent exacerbation of the infection has occurred, and particularly if the process is extensive, it is usually inadvisable to perform a radical operation. If the character and severity of the pain indicate a subacute perforation the patient should be kept in bed and the stomach at as complete rest as possible to

permit the infection to subside. Extraordinary changes may take place in the inflammatory tissues under such treatment, and a radical operation can be carried out with much greater safety. In cases of chronic perforating ulcer one should follow the principle, whenever possible, of removing the ulcer. In many such cases the lesion becomes attached to organs and tissues outside of the stomach, the pancreas being the most commonly involved and the liver next. The lesions are usually of considerable size, and a superficial examination of them and their attachments will frequently lead the surgeon to believe that it is unwise to attempt removal. In many instances, however, it will be found on more careful investigation that the lesion can be separated; this permits much greater mobilization of the stomach and partial gastrectomy, whereas without detaching the ulcer, it seems out of the question. It should be noted that if the perforating ulcer is not removed but is left attached, the possibility of permanent relief is slight, and also that these attached lesions are more often malignant than the unattached. In some cases in which the lesion is situated so high that partial gastrectomy is inadvisable the ulcer can first be separated from its attachments, the thickened ring of the opening in the stomach can be excised, the opening closed, and gastroenterostomy performed.

MALIGNANT DEGENERATION

The relationship between ulcer and cancer of the stomach has never been questioned. The two unsettled questions are: (1) why lesions that frequently exhibit all the gross characteristics of ulcer (clinical, roentgenologic, surgical, and pathologic) have microscopic evidences of cancer, and (2) whether ulcers that are clearly malignant were malignant primarily or secondarily. These questions will probably not be answered until the life history of cancer is understood. Much of the confusion regarding this subject is due to the fact that investigations made with the idea of determining the frequency with which ulcers become cancers are made on specimens from advanced cancer of the stomach in which it is usually impossible to determine the nature of the original lesion. If tissues from gastric ulcers only were investigated for carcinomatous change, greater progress would undoubtedly be made toward the solution of the problem. Fortunately the very uncertainty of the true relationship between ulcer and cancer makes more certain the indications for treatment. If it can be shown that malignant ulcers are malignant from their inception, and that they cannot be differentiated, removal of the lesion is clearly indicated from the standpoint of safety alone. The experienced clinician may be able to say with considerable confidence that a given ulcer of the stomach is malignant, but never with great confidence that it is benign. The possibility of a gastric lesion being malignant, regardless of whether it is a malignant ulcer or an ulcerating carcinoma, is more than adequate reason for radical removal.

HOURLY GLASS CONTRACTION

Hour-glass contraction is encountered in about 8 per cent of cases of gastric ulcer. It is more

common in females, the proportion being about 3:1.

The ulcer associated with hour-glass stomach has certain characteristic features. Apparently its healing power is high, and quite often evidence is found of healed ulcers in other parts of the stomach. It is also interesting that certain surgeons of wide experience believe that ulcers that cause marked hour-glass contraction never become malignant, and the condition is dealt with on the basis that an indirect operation such as gastrogastrostomy alone is adequate, since it relieves the patient from the mechanical effects of the hour-glass contraction. I have never been satisfied, however, to follow this practice as a routine; I prefer to remove the ulcer and the constricted portion of the stomach if it can be done with reasonable safety. As a result some type of resection, excision of the segment of the stomach containing the contraction, or partial gastrectomy including also the lower segment, is usually performed.

OPERATIVE PROCEDURES

Operations that accomplish the first principle in the surgical treatment of gastric ulcer, namely the removal of the lesion, are as follows:

1. Local excision either by the so-called wedge-shaped excision or by cautery puncture or cautery excision. With such removal the stomach should be drained; this is accomplished either by gastroenterostomy or pyloroplasty. Local excision alone, regardless of how satisfactory it may be, is inadequate, but combined with gastroenterostomy it is, for small ulcers, the most satisfactory operation performed. It is the least destructive, it completely removes the ulcer, it is followed by good mechanical function, and the protection against subsequent ulceration is 96 or 97 per cent.

2. For large ulcers partial gastrectomy is preferable, since local excision would be too extensive. If the lesion is near the pyloric end of the stomach the Billroth I and its modifications are satisfactory procedures. The well-known modifications of the Billroth I operation are those devised by Schoemaker, C. H. Mayo, Von Haberer, Finney, Horsley, and others.

3. I have already mentioned segmental resection for lesions in the body of the stomach. It is a satisfactory procedure, both from the standpoint of immediate and late results, although the function of the stomach is not quite as good as that following other types of resection.

4. The Billroth II operation is satisfactory in principle, but since the introduction of the method, ascribed to Polya, of uniting the end of the stomach to the side of the jejunum, the time saved and the fact that as good function follows the operation give preference to the latter procedure. The end-to-side anastomosis between stomach and jejunum may be made posterior to the colon and transmesocolic if only moderate procedures are carried out, but in extensive gastrectomy it is safer to make the anastomosis anterior to the colon.

5. As has been noted, it is not always possible to carry out a radical operation for ulcer. In about 25 per cent of the operations for gastric ulcers in the clinic it was found inadvisable to remove the ulcer. In 50 per cent of such cases either posterior

or anterior gastroenterostomy can be expected to relieve symptoms. The gastroenteric stoma should be made, if possible, at, or above, the level of the lesion. If the lesion is in the cardiac end of the stomach, the best chance for cure is by placing the stomach completely at rest. This is accomplished by means of feeding through the jejunostomy tube until fluoroscopic examination shows that the lesion is healed.

Mayo Clinic.

THE GENERAL PRACTITIONER*

By JAMES B. HERRICK, M. D.

Chicago, Illinois

THE family doctor is gradually disappearing. By many physicians, the laity, and by students of social problems, this prospective loss is viewed with great regret and even perturbation. They feel that the family doctor is an essential feature of every village and town, as much as is the school-master or the corner grocer. To lose him is seriously to disturb the happiness and smooth working of the community. Who will be found to take his place?

What a unique place it is! An old adage says that the minister sees people at their best, the lawyer sees them at their worst, the physician sees them as they really are. The village doctor knows the secrets of the home, the joys and sorrows of every room, the skeleton in every closet. He advises not only as to health but also in case of family trouble. Rules of conduct are prescribed and corrective advice is administered, at times in form no more palatable than are his medicinal draughts and boluses.

THE FAMILY PHYSICIAN

And such confidence and affection as is the doctor's lot! "Your advice is good," writes a patient, "I intend to stick to Dr. S. As a family we thoroughly appreciate him. When the grim reaper calls for me I expect Dr. S. to fight him as long as possible and then make the passage easy." "Doctor, don't send your assistant," said the old Irish lady on West Superior Street. "Come yourself. The young man may be all right, but you took care of my poor husband Dinnis when he got hurt and died. You threatened little Mike when we lost him with the diphtheria; you doctored my sister for her kidney till she died; you were with me ould mither in her last days with pneumonia and, Dochtur dear, I have that confidence in you that I don't want no one else." The family doctor and I were standing in the hall ready to leave after our consultation over the aged mother. The husband, the three or four children and one or two other relatives were there, sorrowful and sober-faced, for the outlook of the illness was gloomy. "It looks bad, but we have come through some prettey severe illnesses in this house and we'll do the best we can," cheerfully said the family doctor. Suddenly the youngest daughter, a charming matron of thirty, threw her arms about the doctor's neck, kissed him on the cheek and said, "Oh, you dear good man, how we all love you." It was a spontaneous expression of affection for the

* Read before the California Medical Association in General Session, Los Angeles, April 26, 1927.

man who for many years had faithfully served them. As we left the house the doctor, with eyes still moist, said to me half apologetically and as in explanation, "You know I brought her into the world thirty years ago, and also her baby last year." "I intend to stick to the doctor." "Don't send your assistant, come yourself." "How we all love you." Can any other business or profession match these tributes?

But I need not describe the family doctor whose loss is deplored. Ian Maclaren and others have drawn the portrait of this faithful medical friend, and most of us have known him in the flesh. He has won respect and affection by reason of his learning, his wisdom, his skill, his resourcefulness, his courage, his self-sacrifice.

But there is another side to this picture. The family doctor has been worshiped as a fetish. To criticize him is viewed by many as little short of sacrilege, but I venture, perhaps rashly, to call attention to certain shortcomings that attach to some of this group—not to all by any means.

Frequently the family doctor has been too poorly informed to be a safe guide. He has many times been ignorant of up-to-date scientific medicine. Sometimes he has known his lack, and has been reasonably safe; often he has not and dire results have followed. He has neglected serious disease in its incipient and curable stage because of superficial examination or incorrect reading of symptoms and signs. He has dogmatically relied on personal experience even though it might be opposed by facts well recognized by those better informed. He has attributed to the nature of the disease certain complications due to mistakes in technique. "I don't believe in operation for appendicitis," the country practitioner said to me, "for out of four patients on whom I lately operated I lost three, and two of these were clean cases to begin with." The force of my remark that I agreed that *he* had better treat his patients as he had before, by nonoperative methods, was entirely lost on him. But the tragedy of the two clean cases! And the gullibility as to drugs, the grasping at anything new in the therapeutic line, the inability to distinguish between the stamp of scientific accuracy and the stamp of a patent drug firm. The ignorance concerning the natural course of disease. "I had six patients with pneumonia get well on boric acid," said the therapeutic optimist. "But," his professional brother, a gradgrind in medicine, replied, "I had seven get well without it." The skeptic seemed to have the better of the argument, but he made no impression on the mind of the other. And are these drugs harmless? Not always. I fear that here and there a patient has had his exitus made rapid or his recovery slow and stormy by the ignorant and reckless use of unnecessary and harmful drugs. And to the list of the needed operations omitted that must be charged to the score of the poorly qualified family doctor must be added those of operations badly performed by the doctor himself or by some incompetent surgeon of his choice, operations many times unnecessary or even harmful. I am not referring in this criticism to what is done by the small number of men who are dishonest or who knowingly treat

or operate for commercial reasons only. These are frauds and are to be classed with shyster lawyers; they are outside the pale of discussion. I am speaking of the unfortunate results of ignorance, poor judgment, lack of early hospital training in the observation of disease and in assisting at operations performed by experts. That these errors are made by men who are honest, faithful and sympathetic, does not lessen the lamentable consequences.

FEWER FAMILY DOCTORS, AND WHY

Why is the family doctor vanishing?

The reasons may be grouped under three heads:

1. The impossibility for one man to know and do the many things required for the proper medical care of a family.

2. The lure of the specialties.

3. The tendency on the part of the laity to demand and secure first hand, i. e., over the head of the family doctor the services of the expert, i. e., what in their view are the best services.

1. It is impossible for one man to grasp and utilize all of medical knowledge. No matter how carefully the textbooks and his instructors may have boiled down and simplified this knowledge the recent graduate leaves even the best medical school possessed of only a small fraction of what is known in the medical and closely allied sciences. No matter how studiously after graduation he tries to keep up with the new advances he is soon conscious of being left behind. He may fairly well keep up in one or two branches, but in all the task is too great.

Fifty years ago this was not so. One man of receptive mind and industrious habit could master fairly well the essentials that enabled him to practice the art of medicine as it was then understood. It is different now. There is bacteriology, with the new viewpoint of infectious diseases, immunology, serology, preventive medicine, and the new surgery with its many life-saving and health-giving operations. The modern family doctor must at least know the benefits, dangers and limitations of these operations so as to be able to give sound advice concerning their need, and he must be a judge of the competence of the surgeon who is called in.

He must be an aseptic obstetrician. He must be an expert on diet. He should know that special skill is required properly to direct the artificial feeding of an infant, an undernourished child, an overnourished adult; a patient with an ulcer of the duodenum or a severe diabetes. The technical requirements in any one of these cases may be as great as for a major surgical operation. He must know something of endocrinology and much of chemistry. He must understand instruments of precision. The general practitioner cannot master them all, but he must know how to assess their findings. He is supposed to keep informed regarding new drugs, new diagnostic signs, new advances in physiology and pathology. And much more.

If he tries to do all these things he spreads himself out so thin as to be a very ordinary or superficial diagnostician, a poor or dangerous surgeon, an overconfident or hesitating therapist; he is in a word a mediocre or inferior man. Such a one is liable to drift and wind up as a pseudoquack, a pseudoscientific general practitioner, relying on his

much vaunted "experience" which Hippocrates and other wise men since his time have declared to be fallacious. The better informed, more honest man realizes his limitations. He is obliged repeatedly to seek aid of specialists and he very likely decides to become one himself. He gives up general practice and, if he has the right preliminary training and is willing to devote enough time to properly directed graduate studies, may become a first-class man in some one subject. But the practitioner, the family doctor, has disappeared.

This is the important, fundamental reason why the old style family doctor is going—the physical and mental impossibility of grasping any considerable proportion of the enormous mass of present-day medical facts, to say nothing of theories.

2. The financial return to the general practitioner is seldom commensurate with the time and expense involved in his preparation for practice. After a minimum of seven years after leaving high school so that at the age, perhaps, of 26, if father has worked his boy's way thus far, our licensed doctor is permitted to enter the ranks and compete for a livelihood. And what is the manner of his pay? Almost that of the taxicab driver, so much for the first mile and so much for each subsequent mile. Scientific knowledge, technical skill, professional opinion, years of close application to studies, all paid for on a chauffeur's basis. Need we wonder that the A. B. from Harvard, Michigan, California, hesitates to become a family doctor? By tradition, by urge of hunger, by need of clothing and shelter, he is forced to respond to calls that come to him with the tone of orders to employees. He loses his self-respect and feeling of independence. He is not practicing as a professional man, rather as a tradesman or a hired servant.

The specialist toils less arduously for larger fees, is more independent, has a higher standing in the community as one who possesses knowledge and skill that are not common to all. Our general practitioner decides to break away from the daily grind of family practice; he gradually or suddenly, as the case may be, becomes a specialist—a surgeon, oculist, neurologist, pediatrician, x-ray laboratory man. The ranks of the general practitioners are being thinned daily by this desertion—or shall we call it by this promotion or simply transfer.

3. A change has come over the people in respect to the family doctor. They may admire him and trust him as a man, but they have become aware of his limitations. Health columns in our daily papers, popular medical articles in magazines, freer discussion of matters of anatomy, physiology, hygiene in our schools and colleges—even sex matters—have made people more intelligent along medical lines. They are more prone than ever to make their own diagnoses and to decide for themselves what is best to be done. They often, therefore, go over the head of the family doctor, directly to the specialist. Johnnie's tonsils and adenoids are suspected of harboring harmful germs and the throat man is consulted; the pain in the abdomen probably means appendicitis and the surgeon is seen; the distress from food undoubtedly means ulcer of the stomach,

Mrs. Smith got well of her ulcer under Dr. A., so off they go to Dr. A. for ulcer, etc. They may be right or wrong. They may find an honest, experienced specialist who views the body as a whole or one whose field of vision is narrow and who ascribes all human ills to teeth, tonsils, appendix, endocrine glands, or autointoxication. But the point is that the family doctor is overlooked. He who should be their counselor is ignored. Moreover, the ease with which the specialist is reached makes it no hardship today to see the expert. The telegraph, telephone, steam and electric railways, good roads, automobiles, comfortable ambulances, make it a simple matter to take the patient to the specialist even though many miles away or to get him to come to the home if the patient is too ill to be moved. The result of this modern tendency of the laity to assume the direction of their own medical affairs is that the doctor is looked upon as a convenience for slight ailments or emergencies, as one suited to make painless the last days of some hopeless illness—he sews up the small scalp wound, pulls the milk teeth, prescribes a laxative pill, gives opiates to the sufferer from cancer, or is called out in the night to administer a sedative to quiet some nervous individual who cannot sleep and who next day motors to the city to see the psychoanalyst, or the chiropractor, who, he informs you, "is especially good in these cases, you know." The family doctor is thus pushed still further into the background, is thus being gradually eliminated.

For the reasons given, the family doctor of the old type will soon be a memory only. What will take his place? A group of specialists, organized charity in the hospital and dispensary in the shape of "pay clinics," i. e., small fee clinics or the state paternally furnishing free or cheap medical service to the poor and those of modest means, this latter, a plan that, because of many objectionable features, has few friends among physicians. It may be a combination of these, at least for many years. What will ultimately evolve is largely a matter of opinion. Resolutions passed by medical societies may influence but will not control the change, nor will legislation. Social and economic considerations, which are forces difficult to control, will largely determine the result. But I believe there will come out of all this a new type of general practitioner, that he is even now appearing and that he will combine many of the good qualities of the old type family doctor with added desirable features made necessary by the changing times.

GROUP PRACTICE

Just a word about group practice. This is one of the partial substitutes for the old style doctor, and in some respects not a bad substitute. There are dangers connected with group practice. Commercialism often lurks in these combinations; the diagnosis is too often an assembled diagnosis with facts heterogeneously jumbled together and not integrated and interpreted by some master mind whose decision is the fruit of ripe clinical experience, and who to much knowledge adds judicial wisdom. Division of medical labor can be carried to such an extreme as to make mere repetitional monotony of the simple task irksome and deadening to initia-

tive and the spirit of research which is the activating force in all true medical work. There is apt to be a lack of the important and vital personal touch. The patient is likely to be regarded as a case rather than a human being who is ill. But even though the system has faults and grave dangers, it has certain advantages and it will probably stay, for a time at least. What will ultimately be evolved from it one cannot predict.

THE GENERAL PRACTITIONER OF TOMORROW

But the place of the family doctor will not be taken by the group alone. As I have said, a new type of general practitioner is developing. Just what he will be when fully developed one cannot now say. But we may properly consider.

We may safely predict that he will be human with strength and frailty of character mixed in different proportions much as now. He will not differ much from the average of the race about him. He will work as now, for gain, reputation, opportunity, power. We trust he will not be too commercial. There is quite prevalent today an unfortunate trend of thought which too emphatically views medicine as a trade. The laborer is worthy of his hire. But is it not possible to retain some of the old tradition of medicine as a profession and not a trade?

What kind of practitioner he will be will depend in large measure on how he is trained for his work. This is not the time nor place to discuss in detail the important, complicated and very live question of the education of the physician. The ultimate solution will be greatly favored by the studies now being carried on by some of our best educational experts. We may, however, with propriety refer to a few features of the problem.

REVISION OF MEDICAL CURRICULUM

Our medical curriculum needs revision. May not many things be dropped or modified? Many facts in anatomy available through the index, the descriptive text, the illustration, and the museum specimen should not occupy valuable space in a man's memory, space more properly occupied by knowledge more frequently needed and of immediate use. May not method and technique in preclinical as well as in clinical subjects be preferably taught in the lecture room, library, laboratory, clinic, and ward by means of topics that are live and practical rather than by topics that are purely theoretical and concerned with rare occurrences, or with ideas still in a hazy, experimental stage? Correct habits of thinking and general principles can be taught by the study of drugs like digitalis or opium as well as by some preparation that is new, and sure to be only rarely used in practice.

There is a trend in practice and in teaching away from pathologic anatomy which is to be deplored. I am referring particularly to gross pathologic anatomy. For many years to come, perhaps always, knowledge of altered physical conditions in disease with attendant altered function must remain the basis of diagnosis. Pathologic anatomy is the mistress of us all, said Neusser. The laboratories have not yet entirely displaced the interpretation of symp-

toms and signs on the basis of pathologic anatomy. Some laboratory workers would be greatly helped if they knew more of pathology.

LABORATORY DIAGNOSIS

There is a tendency—we try to combat it, but it remains nevertheless—to overestimate the value of the instrumental and the laboratory side of clinical medicine. There is an air of finality about these tests that attracts us. Figures don't lie is the old adage, and looking on instrumental and laboratory tests as mathematically precise, we feel that they don't lie, though at times they do. It is such an easy, lazy way to let the instrument do it. The Wassermann test will decide as to syphilis. The roentgen ray will tell us whether there is an aneurysm or pulmonary tuberculosis. We can test the metabolic rate or get the blood chemistry, and disregard the time-honored symptoms of exophthalmic goiter or nephritis. Why must we take hours trying to decide whether there is ulcer, carcinoma, or gall-stone? Why not make the exploratory operation that will decide at once?

We all recognize that such teaching or practice is wrong. It trains the student not to examine or to think but to entrust his thinking to a test tube, a mechanical device or the knife of the surgeon. Worst of all, too often the student or practitioner does not think even when the results of these tests come in to him. He lets someone else do the interpreting. He accepts a long distance finding at its face value. He forgets the possibility of error on the part of the method or of the technician. Even the surgeon with his hand in the abdomen or with his gaze on the lesion all too frequently errs.

Many of these instrumental and laboratory diagnostic aids are yet in their infancy. There are so many variables involved that their results cannot be compared in accuracy to those of an adding machine. Their proper place up to the present is as aids that are confirmatory and corrective. They are not the sole arbiters in the case. They are to be fitted into the evidence along with history, symptoms and signs. They are sometimes of negative or even negligible value; at other times, of supreme importance. These facts should be thoroughly impressed on our clinicians even in their years of undergraduate study.

To guard against this tendency implies training in observation—sagacious observation Mr. Flexner happily terms it—in reading and evaluating the work of others, in recognizing one's own and others' limitations and in knowing the meaning and limitations of the methods employed. Is not the best teaching that which emphasizes the balanced combination of the two methods, the laboratory and instrumental, with the careful study of the history and the physical condition of the patient? Which means, of course, close contact with patients in the ward and in the dispensary.

THE RESEARCH SPIRIT

I hope our future practitioner will be under the influence of the spirit of research. Unless he comes in contact with the research man, he will be too likely to be a hack worker, unfamiliar with the methods of investigation. He will be unable to

evaluate that which is new, as it is announced to the medical world. He will take his opinions largely from others. Untrained in criticism of methods of work or habits of thought, he will be too apt to believe implicitly what is printed merely because it is printed or because it emanates from some famous clinician, well-advertised clinic, or much-talked-of laboratory. Our clinician must get some of the fire and enthusiasm of these research men in order to live and not merely exist; in order to produce and not merely to do the daily grind. Here and there the student or graduate will thrill as the consonant chord in himself vibrates in the atmosphere of research, and a real investigator will have been discovered. Investigators are rare; like Cicero's poets, are born rather than made, but they sometimes go undiscovered.

THE PRACTICING PHYSICIAN

But clinical medicine—using medicine in its broader sense as including medicine, surgery, obstetrics, and the specialties—should also be presented to our students by the one who is himself a clinician, a practicing doctor. Such a one has rubbed elbows with the world. He knows the problems of the general practitioner; he has seen patient's in their homes and realizes the human side of illness; he understands how illness begins and not alone how it ends as is too often true of the hospital doctor. Such a man may be intellectually as scientific as his laboratory or all-time colleague. To immure oneself in a hospital or laboratory does not of necessity make a man a scientist. Nor does a man who engages in practice by so doing necessarily lose his scientific habit of thought.

We wish then that our students should have instruction from those who have had clinical experience. Experience rightly utilized is a mighty force for good. The younger doctor stands amazed at times to see the rapidity and certainty with which the older physician makes his diagnosis—a look, a question or two, a naked ear clapped to the chest, a glance at the temperature or blood chart, and the conclusion is reached. It seems almost intuitive, but is, of course, the result of many successes and mistakes, of much reading and comparing of notes and of meditation. It is the practice of medicine where the art is based on a deep knowledge of fundamentals and controlled by a logically working brain. Yet experience may be a power for evil, for there is no greater menace than an opinionated clinician working empirically yet honestly with his misinterpreted experience as his guide.

The practitioner of the future should come into close contact with this right type of clinician not alone when the teacher is in the making as when he is an assistant or an instructor, but when he is made, when he is a ripened clinical teacher. Such a teacher's experience, methods, technique, encouragements, warnings, statistics, his impressions even, his way of handling patients as well as the disease, and his personality should be available to the student who is to go into practice. And, parenthetically, one argument in favor of retaining in the curriculum the large clinic or lecture is that the entire student body, not merely a favored few, may

have free opportunity to see and hear the great clinical teacher and to come under the sway of his personality.

SPECIALISM IN MEDICINE

A word concerning specialism and its relation to undergraduate instruction. Whether we like it or not, specialism is here and is bound to stay, if not permanently, at least for a long season. As we have seen, the practitioner cannot acquire that *all knowledge* that was more nearly possible fifty or seventy-five years ago. He may be a practitioner, but not a general, an *all* practitioner. So specialists have evolved.

There is danger in specialism, it is freely admitted. Specialism is still in process of evolution. Many specialists are such in name only, a name often self-assumed. Many are narrow. Many, poorly prepared, lack broad experience and proper graduate study. They are often more concerned with technique than with diagnosis or indication for treatment. Some are offensively commercial. But in the future one type of clinician will be the well-qualified specialist. He will not be confined by any means to our large cities. He will be readily available; a man as considerate of his fellow practitioner's reputation and comfort as he is of the patient's pocketbook. On him must lean heavily the practitioner, incompetent to treat certain diseases, and trained to admit his incompetence. The operation on gall bladder or prostate gland, the dietetic management of the poorly nourished infant, the expert handling of the neurasthenic, the proper use in certain cases of roentgen ray, radium and perilous drugs, the skilled manipulation of instruments of precision or the technique of applied bacteriology and chemistry—this may be outside the practitioner's field. He must call in the specialist or take the patient to him, or, as is so easily done, the patient goes to the specialist over the head of the general practitioner, particularly when the illness seems acutely dangerous or chronically baffling.

The relation between specialist and general practitioner must be more cordial and cooperative than now; they must not be rivals but colleagues, mutually helpful. There may well be some open apportionment of the fee that will do away with the present unfair practice by which the general practitioner is inadequately paid unless there is some secret splitting of fees which is essentially dishonest and not to be countenanced. The result of this partnership will inure to the benefit of the patient, who, in spite of some of our medicine-as-a-trade advocates, is the prime consideration. The moment we fail to keep the ideal of benefit to the patient before us, practice will degenerate and will be in essence dishonest.

I should like to stress here an idea that I have advocated before; one that has not met with a hearty endorsement but which seems to me nevertheless worthy of serious consideration. It will bring us back once more to the undergraduate medical curriculum.

PREPARATION FOR SPECIALISM

The best preparation for specialism is, in general, an experience as a general practitioner. My conten-

tion is that one of the best preparations for a general practitioner is some study and some experience as a specialist. And I would permit this specialism to start in the medical school. Some criticism of this plan has arisen, I think, because of the use of the word "specialist" in connection with undergraduate work. The worshiper at the shrine of the general practitioner will have the medical school a training place for nothing but general practitioners. Anything smacking of specialism is to this worshiper anathema. His "bete noire" is the undergraduate who is specializing. In fact, so impressed is he with the general-practitioner function of the medical school that in order to turn out this product in greater numbers and at less expense he would shorten the time and bring our teaching down to a uniform level to suit the average student and teach only what by common agreement would be regarded as the fundamentals.

His plan is, I believe, pedagogically unsound. The desired shortening of time should be in the lower schools. A college that consciously trains a man to be mediocre—for in spite of the contention to the contrary, that is what this plan implies; to know a little, only the essentials in the many subjects—is training along wrong lines. It is an injustice to the student. Somewhere in his course each student should be given the opportunity to learn the meaning of the word *thorough*. He should pursue the study of some subject or a few subjects far beyond the elementary phase; he should do intensive, concentrated work along that line, undeterred by the cry of those to whom this seems like specializing. Our best students often do this now, getting into the laboratory or the clinic of some professor for special or advanced work. Our literary schools recognize this principle. They allow much freedom in their choice of studies, but an undergraduate must specialize—that is, major—in at least one subject and not spread himself out thin over a wide range of topics. Unless this majoring—let us get rid of the offensive term specializing—is done in the study of medicine, the doctor who is turned out is ordinary; power that may be lying dormant within him and of which he is unconscious is never developed; he is a man with no particular aim, diffuse and forceless. His later work lacks live interest. He becomes a mere money-getter. He loses self-respect. Unless he feels the incentive that comes from a conscious drive toward superiority in some one or a few lines he stagnates and is soon a negligible quantity.

But more than this, a doctor with only this general diffuse training is dangerous, because he does not know his own limitations. With more thorough knowledge he would shrink from that cocksure frame of mind that leads him to undertake the major operation or to handle the therapeutic medicinal agent that he so poorly understands. Knowledge is power and should oftener be power for good. Fools still rush in where angels fear to tread. The safest man is he who comprehends what is meant by detailed knowledge and who realizes the superior possibilities of expert treatment. A high grade undergraduate education in the essentials, with stress laid on one or two subjects that are studied

intensively, even though five years and much money are required, will turn out a product more contented, more progressive, much safer and in every way more efficient than the graduate of the standardized low-level average course of study. "Non multa sed multum" was Waldeyer's motto.

THE FUTURE OF RURAL PRACTICE

Will these low-standard men go to the country to supply the lack of physicians? And will the people employ them? I fear not. Some will go to the country; many will flock to the cities. They did it in Billroth's time, as he recorded fifty years ago. They are doing it today. If this type of doctor stays in the rural districts he will be accorded the standing and receive the patronage of an average man and no more. Let the well-trained man from the high-grade medical school go into this community. Teach him to estimate his abilities at a fair price. Teach him to be studious, to attend society meetings, to write, to observe, to record and to think at the bedside, in the laboratory and in the roentgen ray room. He will be competent to diagnose 90 per cent of illness and to treat the great majority of his patients. Let him perfect himself in some particular phase of disease thus showing his superior mentality. In this way he will be self-respecting and respected by others, both by lay people and colleagues, he will become the new type family doctor, the family health adviser, the safe guide, philosopher and friend. What the rural districts need today is not so much more doctors as better doctors.

More than this the people of the rural districts are entitled to better doctors and are going to get them. One reason why the country doctor is losing out is because he is not good enough for the country patient. The farmer's conditions of living are very different from what they were fifty years ago. He has a more comfortable home, better roads, better news service by post, telegraph and telephone, better community markets, school houses, better means of transportation. There is better medical service in the clinic and in the well-run hospital in the neighboring town. He will demand this kind of service of the general practitioner and the practitioner will meet this demand or disappear. The dearth of physicians in the rural districts does not mean as great dearth of service as one might think. There is not today as great need for so many rural doctors. In the same time one doctor covers a much wider territory than before. More of his work is being concentrated in hospitals. A colleague commented to the general practitioner on the fact that in a certain village there was now no local doctor. No doctor nearer than eight miles. The practitioner replied that he, eight miles to the east, and another ten to the south, gave the village prompter and, he believed, better service than it ever had before.

IN CONCLUSION

In conclusion, may I quote what I have written elsewhere on a somewhat similar topic:

I believe, therefore, that the practitioner of the future is to be a professional man and not a tradesman. He will see in his patients human beings whose distress appeals to his heart and not alone to

his commercial instincts, his scientific or technical skill and pride. He will be well educated as to knowledge and methods. He will have the wisdom to use this knowledge in practice with a due sense of proportion of the value in the recognition of disease, of history, observation, and instrumental and laboratory examinations. He will not pretend to know all or to do all as rightly could our practitioners of fifty or seventy-five years ago. He himself will do much less than they did. He will recognize his own limitations and appeal oftener to the expert. Between him and the expert there will be the cordial relation of colleagues and not the antagonism of rivals for trade-gain or reputation. He will be no second-rate product of our medical schools, but one of first rank. He will be practical, but inspired to ever improving work by the spirit of investigation. While clinging fast to that which is good of the old he will be no slave to tradition, but will be able to throw aside the disproved old for the proved new. He will be, and will be regarded as being, a scientific man. He will become the family confidant as of yore, the family adviser, well recompensed for his services. He will be self-respecting and respected by others.

122 South Michigan Avenue.

OBSERVATIONS ON BLOOD SEDIMENTATION IN TUBERCULOUS PATIENTS*

By ROBERT A. PEERS, M. D.

CHARLES J. DURAND, M. D.

AND

THOMAS C. O'CONNOR, JR., M. D.

Colfax

IN an article on "Blood Sedimentation Test as an Aid in Diagnosis in Surgical Infections," Friedlander¹ supplies the following definition: "The sedimentation time of the human red blood corpuscles is a non-specific biological reaction indicating the suspension stability of the erythrocytes in blood which has been rendered non-coagulable. The sedimentation test consists in observing the varying speed with which the erythrocytes, in a specially constructed tube, are separated from the plasma"; and, he adds, "It is of great importance to note whether there can be established a definite correlation between pathologic conditions and the length of time required for the sedimentation of the red corpuscles."

EARLY BLOOD SEDIMENTATION INVESTIGATIONS

So much has been written on the subject since 1918, when Fahraeus² discovered the decreased suspension stability of red blood corpuscles during pregnancy, that it is unnecessary to go into the history of the sedimentation phenomenon other than to state that for centuries it has been known that in certain diseases, characterized by inflammation and fever, the erythrocytes sedimented more quickly than was usual in the case of blood drawn from healthy individuals. In fact it was recognized during that period of medical therapeutics when bleeding was a common therapeutic measure, that rapid settling

of the blood cells was a symptom of grave significance. Following this discovery of Fahraeus many clinicians and laboratory workers investigated the blood sedimentation rate as an aid in diagnosis and prognosis in many varied surgical and medical conditions. A recent study by Cutler³ of Philadelphia on blood sedimentation in tuberculosis was the stimulus for the present work. The reports of Cutler and others^{4,5} indicate that by observing the rate of sedimentation of the red blood corpuscles, one has at his command a very valuable aid for determining the amount of activity present in tuberculous foci and that such information, especially when supplemented by repeated tests in the same individual, can supply a very important aid in reaching a decision as to prognosis.

Heretofore tuberculosis workers have labored under a tremendous handicap by having at their command no reliable tests upon which to base a definite opinion as to the amount and character of activity in tuberculous foci nor as to the individual patient's ability to exercise or resume work. It is true that the physician of experience in treating tuberculous patients can, as a result of observation and study of many patients, reach a point where his judgment in such matters attains a considerable degree of skill. His judgment is based upon the presence or absence of temperature, the character and rate of the pulse, the character and amount of cough and expectoration and the presence or absence of hemoptysis, pleurisy and digestive disturbances, by blood pressure readings, by physical and x-ray examinations and by observation and evaluation of a score of different signs and symptoms. But in spite of the greatest of experience and the best of judgment, errors will arise. Patients with doubtful prognoses will return to work and progress favorably, while others with apparently good prognoses will relapse. If then to this experience and judgment derived from observation and study can be added the simple test of blood sedimentation with the result that the percentage of error can be further reduced, a great step forward will be accomplished.

BLOOD SEDIMENTATION TESTS IN TUBERCULOSIS

Explained briefly the value of the test depends upon the following facts and premises:

1. When human blood is mixed with sodium citrate solution, so as to render it non-coagulable, and is placed in graduated test tubes and allowed to stand at room temperature, the red blood cells slowly settle toward the bottom of the tube leaving a supernatant layer of clear serum.

2. In normal healthy individuals this settling takes place very slowly. In women the settling may be slightly more rapid than in men and more rapid in menstruating than in non-menstruating women. These differences are not, however, great enough to affect the value of the test.

3. In cases of arrested tuberculosis the settling of the erythrocytes is not markedly different from that seen in normal blood.

4. In quiescent tuberculosis the rate of settling is slightly more rapid and more pronounced.

5. In active and very active tuberculosis the rate is much accelerated, the rate of settling being apparently, in a majority of cases, closely related to

* Read before the Regional Meeting of the American College of Surgeons, Sacramento, April 7, 1927.

the amount of activity and the seriousness of the disease.

CLASSIFICATION OF THE PATIENTS TESTED

In an attempt to correlate the sedimentation rate and the degree of activity, it was necessary to determine in advance the proper classification of the individual patients used in this experiment. This, it seemed to us, was the most important part of the problem or at least the part most fraught with error. It was decided that one of us (O'Connor) should have complete charge of collecting the blood specimens and make the sedimentation readings, while the other two (Peers, Durand), having the patients under daily observation, should make the classifications. The list of patients' names was supplied to us by the technician, and were classified by us into the following groups:

1. Apparently arrested, including working and non-working cases.
2. Quiescent.
3. Mildly active to quiescent; condition doubtful.
4. Mildly to moderately active.
5. Very active.

This classification was based:

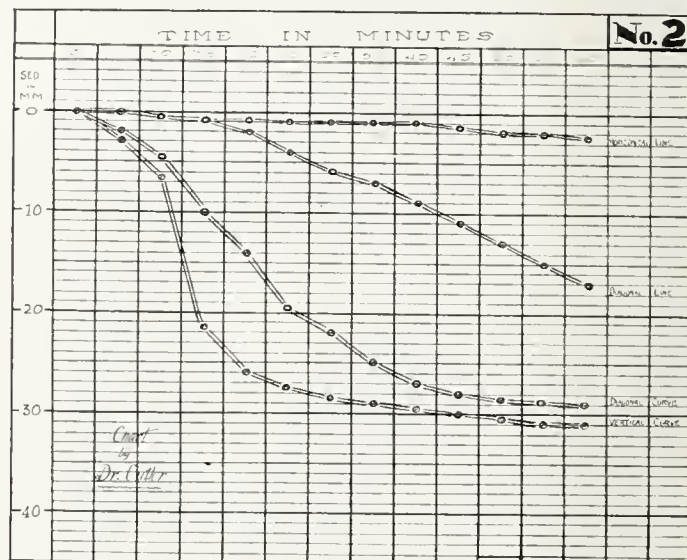
(a) In apparently arrested and quiescent cases, upon the length of time they had been free from fever and other signs of toxemia and upon the amount of exercise they could take or the work they could perform without signs of reaction.

(b) In active or very active, upon the severity and the number of the symptoms of toxemia and the length of time such symptoms and such severity had existed. The improvement or non-improvement or increase of symptoms was also taken into consideration.

The presence or absence of cough or expectoration or the presence or absence of bacilli in the sputum was not considered in the classification except that the occurrence of increased cough and expectoration was considered as evidence of activity even where other signs were absent. The classification was made as nearly correct as possible upon the experience and judgment gained by daily contact over a period of years in the treatment of many thousand patients and without attempting to make

individual patients fall into a class governed by strict fast rules.

Each of us (Peers, Durand) had a separate list of patients and classified each patient without consulting the other. When lists were compared it was



found that the classification agreed with a very small margin of difference.

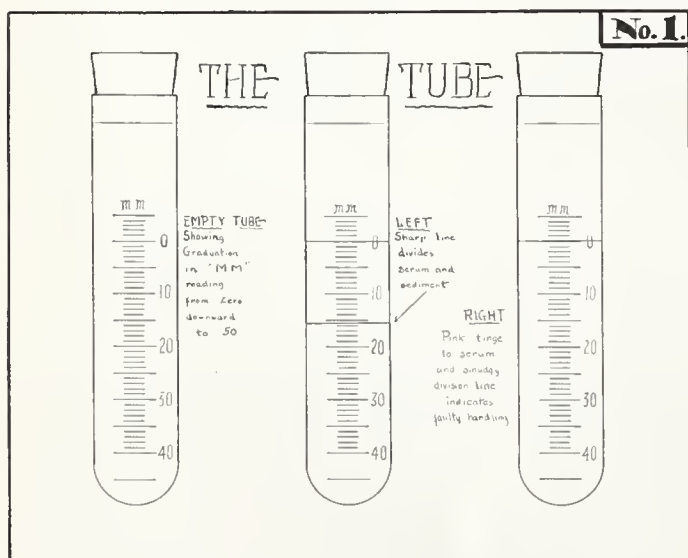
TECHNIQUE OF SEDIMENTATION TEST

The technique of Cutler, as described in the above-mentioned article, was used throughout, as were also the tube and sedimentation charts described by him. The type of tube is shown in Fig. 1. It is of 10 cc. capacity and graduated up to 5 cc.'s in tenths of a cubic centimeter and marked in millimeters. It is necessary that needles, syringe, and tubes be clean and dry.

A 5 cc. syringe with 20 gauge needle was used. Into this was drawn $\frac{3}{4}$ cc. of freshly prepared 3 per cent sodium citrate solution. The inside of the syringe was moistened throughout with the citrate solution and then enough of it expelled to leave exactly $\frac{1}{2}$ cc. in the syringe. The cubital vein was punctured and $4\frac{1}{2}$ cc. of blood added to the citrate solution. The needle was then withdrawn and removed. The barrel of the syringe was then drawn back and the contents mixed by carefully tilting the syringe back and forth until the solution and the blood were thoroughly mixed. The blood was then transferred to the sedimentation tube.

The blood was collected between 9 and 11 a. m., and the readings made within four or five hours. Usually five or six tubes were taken in the morning and allowed to stand in a rack with the tubes stoppered with paraffin-coated corks. Before reading, the rack and tubes were gently inverted several times so as to obtain a uniform suspension of the blood cells in the citrated plasma.

The readings were recorded on Doctor Cutler's sedimentation charts on which the horizontal lines represent the divisions in the sedimentation tubes and the vertical lines represent the interval of time, each vertical line representing five minutes of elapsed time (Chart 2). By recording on the chart each five minutes the millimeter reading on the blood tube, a graph is made from which the velocity of sedimentation at any period is easily noted. The sedimentation chart is a very ingenious and excellent



tation was considered as evidence of activity even where other signs were absent. The classification was made as nearly correct as possible upon the experience and judgment gained by daily contact over a period of years in the treatment of many thousand patients and without attempting to make

method of illustrating in a graphic manner just what happens in each particular blood studied. It makes a permanent record and is particularly valuable because a series of blood tests from the same patient can be recorded on one chart, thus furnishing an easy and quick method of estimating the correlation, if any, between changes in the clinical course of the patient's disease and changes in the manner of blood sedimentation.

INTERPRETATION OF SEDIMENTATION TEST

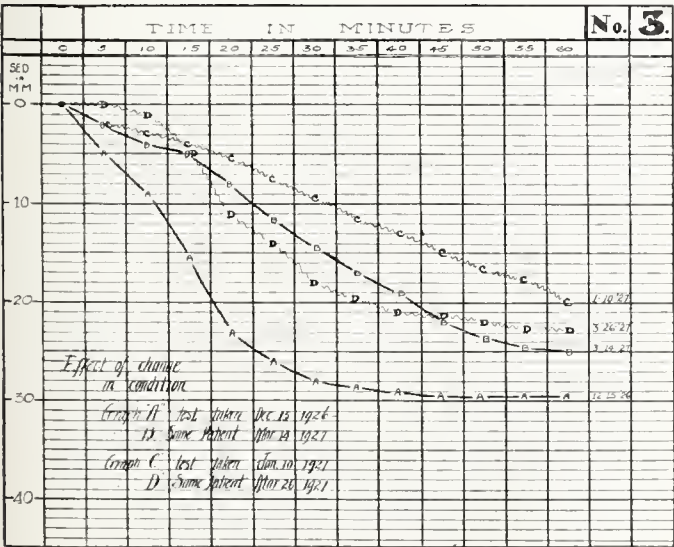
If there is a definite relation between the degree of tuberculous activity and the sedimentation stability of the blood and if, with disease activity, the blood sediments more rapidly according to the degree of activity, this should be clearly shown on the chart. This will be shown in two ways:

First, by the sedimentation time which is the number of minutes from the commencement of the count until the cells are beginning to pack and the sedimentation has definitely slowed up, which, in normal individuals, is always a period of several hours.

Second, by the sedimentation index which is defined by Cutler as "the total sedimentation of red blood cells at the end of sixty minutes expressed in millimeters."

In the normal person this sedimentation index should not fall below 10 mm. and may be as low as 2 or 4 mm.

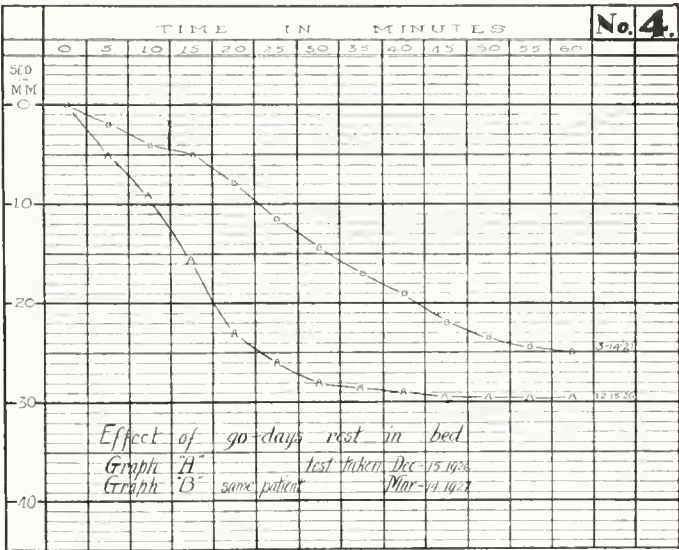
The graphic chart should then, in normal humans, show an almost horizontal line when the sedimentation is charted. With departure from the normal, the index should be higher and the line assume a more diagonal course. In very active cases the line should, and does, drop more rapidly, and frequently shows a sedimentation time of between twenty and thirty minutes instead of several hours and a sedimentation index of between 10 and 30 mm. instead of a normal of less than 10 mm. with an average of 5 or less.



Cutler gives four graphs as the probable sedimentation lines to be seen in different types:

- (a) A horizontal line as seen in normal persons or in arrested tuberculous patients.
- (b) A diagonal line as seen in quiescence.

- (c) A so-called "diagonal curve" representing slightly or moderately active disease.
- (d) A so-called "vertical curve" representing moderately to markedly active cases. These are shown on Chart No. 2.



RESULTS IN 126 CASES STUDIED

Our series consisted of 126 cases classified as follows:

- (a) Apparently arrested, sixteen cases.
- (b) Quiescent, twenty-one cases.
- (c) Doubtful quiescent, nine cases.
- (d) Mildly or moderately active, fifty cases.
- (e) Very active, thirty cases.

Our findings, in the main, agree with Cutler. Our apparently arrested cases, many of them working, some for many years, almost uniformly showed a horizontal line with a low sedimentation index. Our very active cases showed, almost always, a diagonal or a vertical curve, except that our percentage of vertical curves was not so great as we should have expected.

On the other hand quite a high percentage of our quiescent cases gave a horizontal line. Also some of our mildly active cases, from a clinical point of view, gave a diagonal or quiescent line. These differences are probably due to one or more of three things:

1. The fact that no series of sedimentation tests can be expected to run true to form to the extent of 100 per cent.
2. The average sedimentation index as shown by Doctor Cutler may be too high for quiescent and mildly active cases.
3. We may have been too conservative in our classification and have erred in placing our patients in a class more unfavorable than that to which they were entitled. In this respect, however, we noticed that three of our active cases which gave a quiescent, or nearly quiescent line, developed shortly thereafter quite acute exacerbations, thus confirming the clinical judgment rather than the blood sedimentation picture. In two of these three cases, however, the sedimentation at the end of two hours showed a very marked drop such as was not seen in the two-hour pictures of our arrested or definitely quiescent group; which may indicate that there may,

in some cases, be a delayed sedimentation and that perhaps more attention should be paid to the two-hour sedimentation index in suspected active cases.

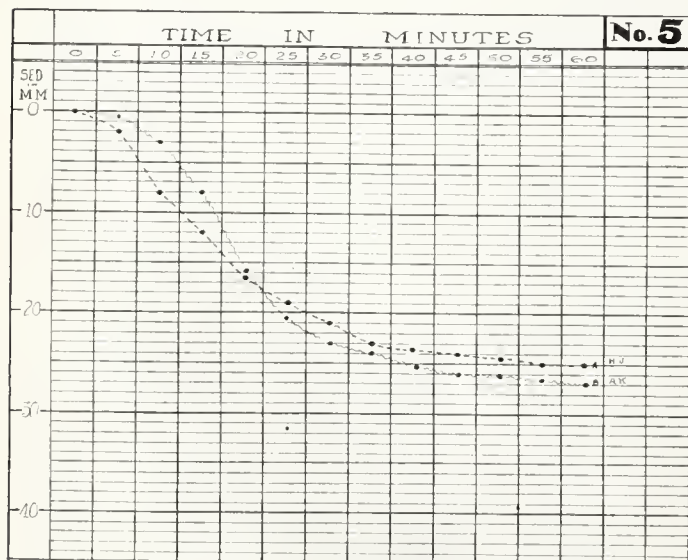
OTHER CHART INTERPRETATIONS

Chart No. 3 shows the curves on two patients where, in each, two different sedimentation tests were taken after a period of several weeks. The lines marked A and B represent the curves of one patient with an interval of three months—curve A being the result of a test taken on December 15, 1926; curve B being taken March 14, 1927. This patient, a very advanced case classified as very active, was put on bed rest and, no improvement being shown in her condition, was, after an interval of several weeks, given pneumothorax treatment with evident clinical improvement. Curve B showing a slower and less marked sedimentation would, in this case, seem to bear out the clinical evidence of lessened activity.

Lines C and D give the opposite picture. Line C shows the result of a test taken January 10, 1927, in the case of a patient with normal temperature, marked gain in weight and without any marked symptoms of toxemia. His sputum was negative for tubercle bacilli on numerous occasions. He was classified by us as active in spite of good general condition. His sedimentation curve, however, approached very closely the diagonal line of quiescence. March 20, he developed a typical exacerbation, and the line D shows the change to the diagonal curve of activity following a test taken March 26, 1927. It is of interest also to remark that his sputum was positive for the first time in nine months.

Chart No. 4 is another graph showing a separate picture of the improvement shown by lines A and B in Chart No. 3.

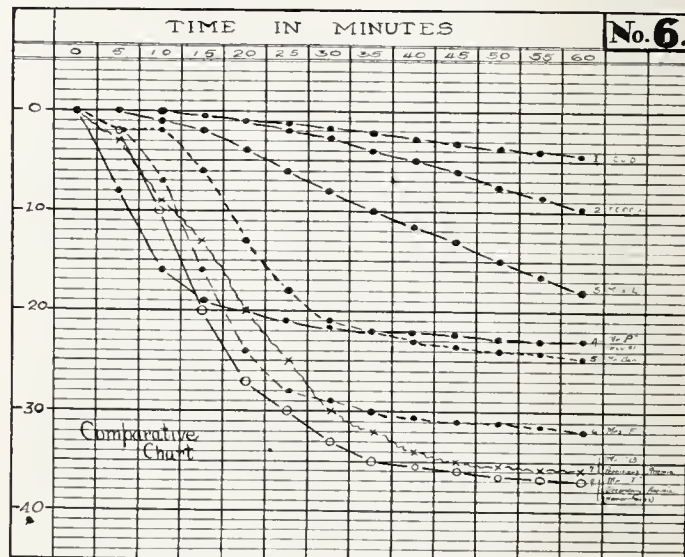
Chart No. 5 shows two interesting curves bearing out the judgment of the clinician based on his knowledge of the patients as a result of long observation. A is an advanced patient whose disease has been apparently quiescent for many months but who was classed as active and whose exercise has



been very closely supervised. Because, however, of the chronicity of his disease, he has been allowed to do a little clerical work at the institution to keep his mind occupied and to pay his expenses. He is allowed two or three hours per day keeping books.

He has, however, not been allowed to think of returning to work. His curve would seem to support the need of continuing his present mode of life.

Patient B is an advanced patient whose disease, as far as symptoms are concerned, has been appar-



ently quiescent for several months. His clinicians classed him as active and have limited his exercise to fifteen minutes per day, although other patients, with the same clinical history, are allowed as much as forty minutes. The curve B would seem to show the clinicians' judgment to be correct and would indicate that patient B requires careful supervision in spite of long and continued normal temperature, good weight and feeling of well-being.

Chart No. 6 gives a comparison of the graphs of different types of patients:

No. 1 is an apparently arrested case who has been working ten years.

No. 2 was classified by us as quiescent and yet falls within the extreme normal limit. This is a pneumothorax patient still under treatment but able to do some work.

No. 3 was classified by one of us as mildly active and by the other as quiescent. She has the quiescent or diagonal line.

No. 4 is a quite markedly active case, according to our classification—a case of hydropneumothorax. His curve shows a very quick drop, but the sedimentation index is only 23 mm.

No. 5 is a very advanced and, we consider, a very active case—more so than No. 4—but his drop is not so rapid although his one-hour index is slightly greater.

No. 6 is a very active advanced case with, we think, a hopeless prognosis. She has a quick drop and a high index.

No. 7 is one of pernicious anemia sent to us because of supposed tuberculosis which our examination failed to disclose. His curve is shown, as it bears out other authorities regarding the graph seen in pernicious anemia.

No. 8 is a case of advanced active pulmonary tuberculosis with tuberculosis complications and with a marked secondary anemia. He has the highest sedimentation index of all.

Chart No. 7 illustrates the appearance of the sedimented blood in the tubes as seen in six of the

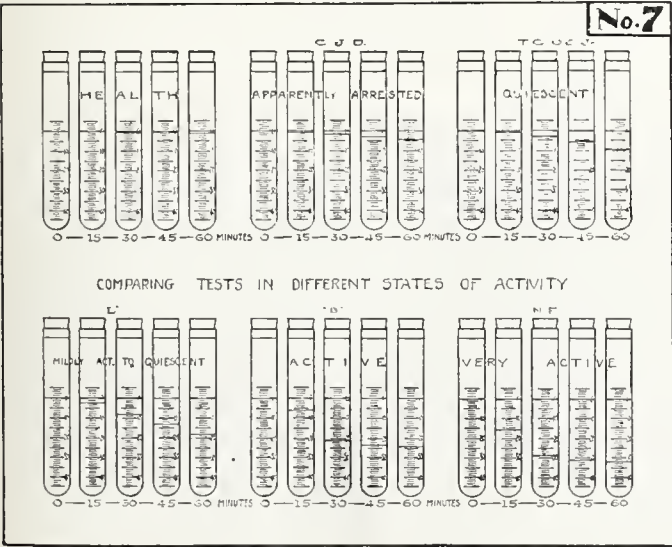
eight patients whose graphs were shown on Chart No. 6.

Chart No. 8 shows in percentage figures how the total number of patients on the different classifications were divided when classed according to the various lines of Cutler. This table seems to indicate to us that we have been perhaps too conservative in our classification and have placed a number of the apparently arrested cases in the quiescent group and have called mildly active many who were really quiescent. That is our feeling. Time alone will furnish the truth of the matter. After a year or two of follow-up we will be in a much better position to offer a definite opinion. The percentage table does, however, show one thing very strikingly and that is, that with the increase of activity there is a distinct shift to the right of the table. Thus, while at the top of the list the apparently arrested show 87.5 per cent of horizontal lines and 12.5 per cent of diagonal lines there are no diagonal or vertical curves, while at the lower end of the list in the case of the very active there are no horizontal lines, only 9.9 per cent of diagonal lines with 69.9 per cent of diagonal curves and 19.9 per cent of vertical curves. It is in the grades between, the quiescent cases and those from quiescent to moderately active, where the phenomenon of sedimentation is not so strikingly helpful. This may mean a large percentage of error in classification or it may mean that those patients in these middle classes whose graphs fall in the horizontal lines are, while more or less active, those with good prognoses; while those falling in the diagonal curve, even though apparently quiescent, are in the danger group. Time and follow-ups should help solve this problem.

CONCLUSIONS

From the study we have made we would draw the following conclusions:

1. That there is a very definite tendency to sedimentation instability of the erythrocytes in the blood of tuberculous patients.



2. That there is a more or less definite relation between the degree of tuberculous activity and the sedimentation index of the patient's blood.

3. That this relation is shown by the tendency of the sedimentation index to approach the normal as

patients improve and as their disease becomes quiescent or arrested.

4. That the sedimentation index in a majority of cases of active disease shows a sedimentation index away from the normal in proportion to the activity

TABLE OF PERCENTAGES No.8				
CLINICAL CONDITION	HORIZONTAL LINE	DIAGONAL LINE	DIAGONAL CURVE	VERTICAL CURVE
APPARENTLY ARRESTED	87.5%	12.5%		
QUIESCENT	47.6%	38.1%	14.3%	
MILDLY ACTIVE TO QUIESCENT	44.4%	44.4%	11.2%	
MILDLY TO MODERATELY ACTIVE	24. %	26. %	50. %	
VERY ACTIVE		9.9%	69.9%	19.9 %

and to the seriousness of the patient's condition.

5. That the evidence furnished by the sedimentation index cannot at present be allowed to outweigh other evidence, but must be considered merely as additional data in summing up the estimation of activity or in determining the prognosis.

6. It may well be that one of the great benefits to be derived from this test will be from a study of a series of tests taken from time to time on each individual during the period of sanatorium residence. We feel that such serial tests will probably be of much greater value than single tests.

Colfax School for the Tuberculous.

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Dr. Abraham Zingher, noted bacteriologist who helped to perfect the Schick test for susceptibility to diphtheria, was asphyxiated June 5 in his laboratory in New York, while he dozed in his chair. He was conducting research into the Dick test for scarlet fever. The gas tube to a burner over which he was heating a test tube became disconnected while he slept. The body was found by Mrs. Zingher. The doctor was 42 years old. He had suffered a stroke of facial paralysis once before, and Doctor Gonzales, assistant medical examiner of the New York health department, who investigated the death, expressed the belief that he had suffered a second stroke while at his work. A sheaf of new-made notes lay beside him on the table on which his head rested when he was found.—Ohio Health News.

A DISCUSSION OF THREE CASES OF BILATERAL KIDNEY CALCULI*

By L. I. OPPENHEIMER, M. D.
Oakland

DISCUSSION by W. F. Braasch, M. D., Rochester, Minnesota; George G. Reinle, M. D., Oakland; James R. Dillon, M. D., San Francisco.

CALCULI of the upper urinary tract, according to Kuster, are bilateral in 11 per cent of all nephrolithics. Braasch found this incidence 9.9 per cent, and Federoff 15 per cent. At the Alameda County Hospital, for the past five years, 7.1 per cent of kidney calculi have been bilateral. During the last twenty months at the Oakland Health Center Urology Clinic, of the five patients with upper urinary tract calculi two have had bilateral stones. I wish to discuss these two cases, seen also by Dr. George Reinle, and one from my private practice.

SYMPTOMS OF CASES 1 AND 2

The symptoms of Case 1 were not characteristic of renal calculi; in fact, with the exception of a slight frequency of urination the complaints were referable to the gastrointestinal tract. In Case 2 frequency of urination, dysuria, pressure sense in the bladder, and vague abdominal pains might all have been due to the stricture of the urethra found upon examining this woman. When the urethra was being dilated for cystoscopy a severe attack of left-sided abdominal pain occurred. Close questioning elicited the history of a similar attack nine months previously, a fact missed at the first examination because the patient had two dependent children and was afraid she would be hospitalized if she told of her previous seizure.

ABDOMINAL, CYSTOSCOPIC, AND FUNCTIONAL EXAMINATIONS

On examination of the abdomen of Case 1 the lower third of the right kidney and the lower pole of the left were palpated without eliciting tenderness; in Case 2 the lower pole of the right kidney was felt.

The bladders of both presented moderate grades of chronic cystitis. There were no abnormal findings of the ureteral openings. All of the four separated urines contained pus and bacteria. The urine of the left kidney of Case 2 and that of the right of Case 1 showed the greater degrees of infection.

The left kidney of Case 2 excreted only a trace of dye and showed a marked reduction of the urea concentration. With the right kidney about 50 per cent efficient the total function of this patient ranged around 25 per cent.

In spite of the enormous stone in the left kidney of Case 1 its

excretion was 90 per cent normal. Since the opposite kidney excreted 30 per cent the total kidney function of this patient was approximately 60 per cent. That this reduced function created no excretory deficiency is shown by the low normal of the blood urea. Case 2 escaped observation before the blood chemistry could be taken.

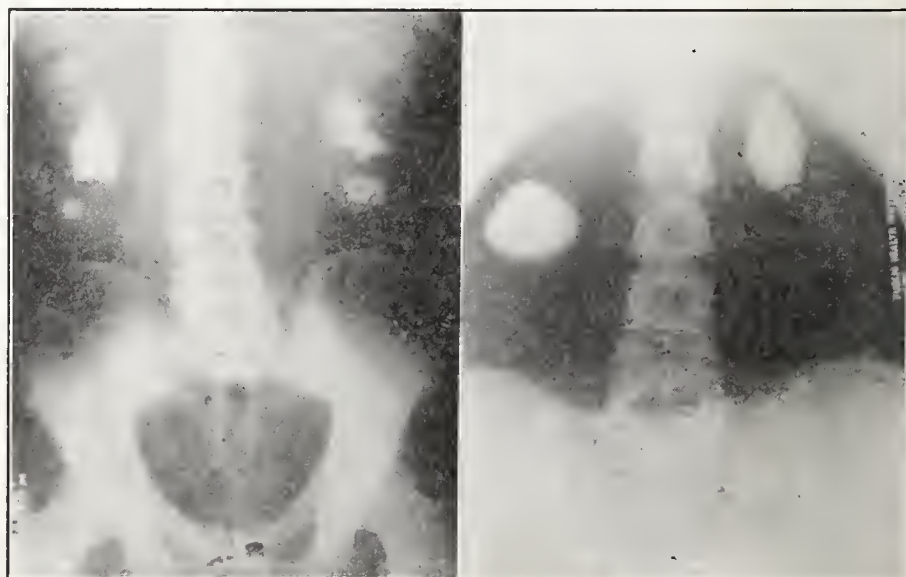
SYMPTOMS OF CASE 3

The clinical picture of Case 3 was entirely different from the two preceding ones inasmuch as this man had repeated attacks of typical renal colic and hematuria over a period of two years. The first seizure, in November, 1923, was the most severe and the longest in duration. The next attack was in March, 1924. From March to July the seizures occurred on the average of two times a week. From July, 1924, to June, 1925, there were no symptoms except a slight nocturia. On the afternoon of June 6, a marked frequency, attended by hematuria, was noted. Generalized abdominal pain started at about 6 p. m. It soon localized in the right flank and, for the next hour and a half, excruciatingly severe spasms radiated to the perineum. The attack subsided gradually. The hematuria persisted for twenty-four hours.

Examination, on the following day, revealed no tenderness or rigidity of the abdomen. Rectal examination established an enlarged prostate of doughy consistency which imparted a crackling feeling to the examining finger. A crunching sensation was produced by the passage of the cystoscope over the prostatic urethra, where pus was seen exuding from the prostatic ducts. Partial calcification of the prostate, probably tuberculous, was confirmed by roentgenological examination. The prostate pus was the cause of the cystitis, as both kidney urines were sterile. The function of the kidneys, as shown by the dye excretion and urea concentration, was normal.

DIAGNOSIS

Roentgenology, with Case 3, was a corroborative and amplifying measure. It was evident that the man had kidney calculi. The number, size, and disposition were demonstrated by the film. But with



Case No. 1

Case No. 2

* Read before the Alameda County Medical Society Meeting, September, 1926.

Cases 1 and 2 the roentgen ray was an essential in making the diagnosis due to inconclusiveness of the symptoms.

Although the symptoms of Case 3 were probably from the engagement of one of the small stones of the right kidney pelvis in the ureter two other possibilities had to be considered. On the first x-ray the shadow below the right kidney looked like a stone in a kinked ureter. But the opaque catheter in situ shows it is to be 3 cm. laterally. With the mass of the stones on the left, the possibility of referred pain had to be considered. This reflex is due to the arrangement of the afferent nerve fibers of the kidneys. Instead of all the groups of afferent nerves of the left kidney, for instance, going to the spinal cord and then to the brain, some may be relayed to the coeliac ganglion, to the opposite kidney, and thence to the higher centers. Thus trauma on the left side may produce pain on the right.

After the x-rays had been taken it was only with Case 3 that a differential diagnosis had to be considered. With the pyuria, calcification of the prostate and vague shadows in the regions of the kidneys; tuberculosis had to be ruled out. It was excluded by the findings of sterile kidney urine and good renal function. The latter would surely have been impaired if the condition had been the calcification stage of tuberculosis.

TREATMENT, CASES 1 AND 2

In Cases 1 and 2 operation is not indicated. The kidneys would be torn to pieces in getting the stones out and result in destruction of the already reduced kidney tissue. It is questionable whether all the calculous material could be removed even by splitting the kidneys from pole to pole and wide incision into the pelves except with the smooth stone of the right kidney of Case 2. Here, however, the function of the opposite kidney is not sufficient to care for the excretory needs of the body pending the postoperative recovery of its fellow. Postoperative hemorrhage requiring nephrectomies are frequent in complete nephrotomies. This possibility would be increased by the presence of the marked

infection in all of the kidneys to be worked upon.

Case 1 has been under constant observation. Attacks of right-sided pain, occurring about every four months, have been relieved by ureteral catheterization. At the last cystoscopy the catheter was caught and held in the right kidney, so that considerable force was necessary to pull it out. When withdrawn it was nearly broken in two close to its tip.

Two days later, after an attack of right-sided colic, the patient voided a small calculus.

TREATMENT, CASE 3

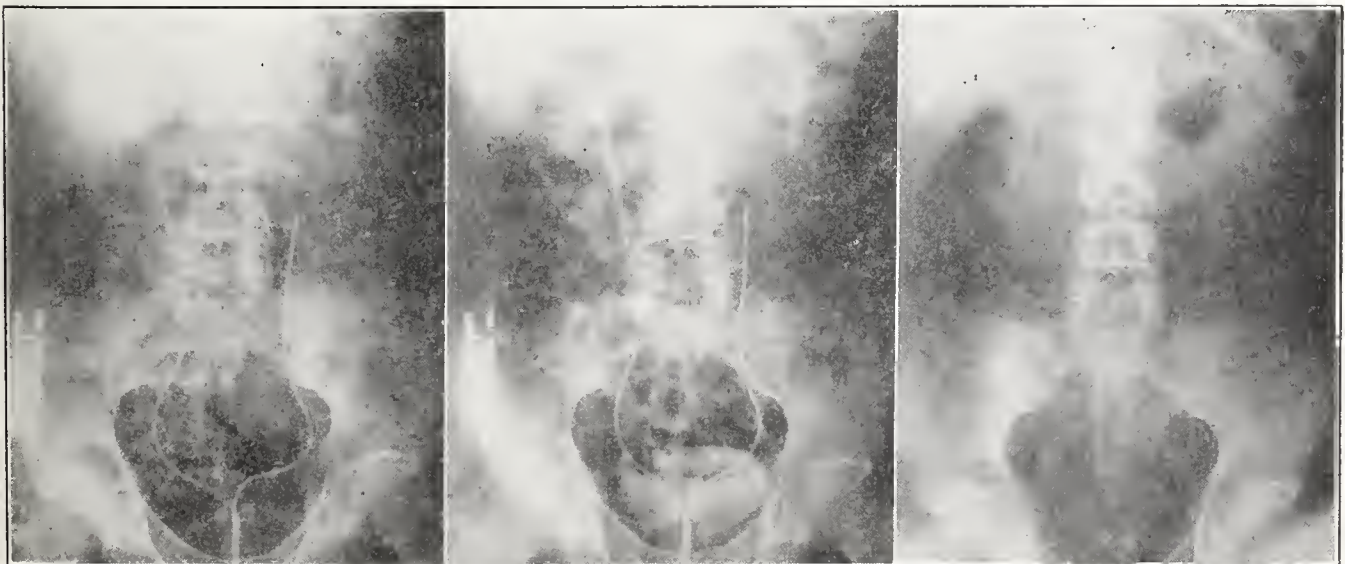
It is essential that both kidneys be rid of the calculi. While it appeared that the stones on the right side could be manipulated out, those on the left were of such size as to require surgical removal.

Advances in the surgical treatment of patients with kidney stones has lessened their previously poor prognosis. This is shown by the consideration of Cabot's 57 per cent postoperative recurrences as compared to Braasch's 10 per cent recurrence of stones after operation. Cabot's cases were collected previous to 1915, Braasch's series covered the years of 1921 to 1926.

This decrease in the recurrence is due to the more complete removal of the concretions. One of the greatest factors in these improved results is the more extensive use of the roentgen ray. In complicated cases the fluoroscope is used at the operating table to visualize and orient the stones when they are being worked upon. With inaccessible calculi, as in Case 3, this is the most certain method of effecting their complete removal.

Case 3, with the multiple, inaccessible calculi, was sent to Braasch, operated on by Hunt October 7, 1925, under direct fluoroscopic vision, and twelve stones removed. Since twelve stones were removed, this means that there was a superimposition of some of the calculi over others as the preoperative film shows only eight opaque areas. In operating on this patient without direct fluoroscopic vision the eight stones would have been removed and, if no others presented, the kidney would have been sewed up with a third of the stones remaining behind.

This visualization of the hidden calculi illustrates



Case No. 3

another essential advantage of renal fluoroscopy at the operating table.

When the patient returned I dilated the right ureter with bougies sizes No. 9 to No. 14. That same evening, after a slight attack of right-sided colic, the patient's statement was that he voided three small, semisolid, brownish-black masses.

These seem to have been the calculi of the right kidney, as the film taken July 1, 1926, shows this area free from shadows. There is about the same amount of calcification in the prostatic region as in the film taken a year previously. The opaque streak in the region of the left kidney looks like a calculous deposit in the kidney pelvic membrane rather than a stone.

Of the general care to be accorded these stone formers attention to the possible foci of infection is the most important. Cases 1 and 3 had abscessed teeth removed. Fruits and vegetables with an excess of calcium oxalate, such as strawberries, figs, rhubarb, and spinach, are prohibited.

They are put on distilled water, a measure instituted by Parks in the early 80's. One of his nephrolithitic patients, a boilermaker, when told of his condition replied to the doctor that when one of his boilers became clogged, rain water was used. Following this precept the man drank distilled water and was said to have been relieved of his symptoms. Oschner popularized this measure.

With the exception of the clearing up of the foci of infection other procedures seem to be merely empirical therapy, for, according to Braasch, nephrolithitics have certain cycles or periods when they are stone formers, and if the calculi are completely removed these individuals are no more liable to re-form concretions than anyone else.

ETIOLOGY

The formation of urinary calculi is no longer a field for idle speculation. Reinle called my attention to some recent work which, to my mind, definitely indicated the etiology.

The problem can be more readily understood if the urine is regarded as a supersaturate-salt solution, which it really is. If a like amount of water of the same temperature and reaction had the urinary salts added they would be precipitated. If, however, the urine's colloid content, consisting of albuminous material from broken-down cells, of pigment, cholesterol and lecithin, be added, these salts would remain in solution. If an insufficiency of these colloids were added there would not be complete solubility, but part of the salts would be precipitated. Likewise, an excess of the crystalloids, if added, would be precipitated. One of these factors must have been present in Case 3, where the kidney urines were sterile. But in Cases 1 and 2 the normal colloid balance was upset by the addition of a pathological exudate to the urine from the infection in the renal pelvis. The crystalloids were precipitated and calculi formed. Fortunately there are only a few infections which have this stone-forming property.

CONCLUSIONS

In conclusion I want to emphasize the importance of early diagnosis and treatment of urinary calculi. Otherwise, among other disasters, condi-

tions such as have occurred in Cases 1 and 2 may ensue. These patients also illustrate the fact that roentgenology should be utilized as a routine in conditions where the kidneys and ureters are suspected.

The third case illustrates the possibilities of manipulative removal of smaller upper urinary tract calculi. Usually it is only after weeks or months of intermittent effort that encouraging results are obtained.

Finally, in surgical treatment of multiple, inaccessible kidney stones, the renal fluoroscope when used at the operating table is not only a help, but is the surest method of insuring the complete removal of the calculi. Its use is limited to the largest of clinics because of the rather expensive installation for the comparatively few cases in which it is needed, and the requisite of a roentgenologist especially trained and experienced in this particular type of work.

215 Wakefield Building.

DISCUSSION

W. F. BRAASCH, M. D. (Mayo Clinic, Rochester, Minnesota)—Doctor Oppenheimer has emphasized the value of certain procedures in the diagnosis and treatment of renal lithiasis which have had comparatively recent recognition.

In making a plea for the more routine use of roentgenology, I would suggest that the roentgenogram be employed in every case suggestive of a lesion in the urinary tract irrespective of whether there is any pain referred to the kidney area. In other words, every patient with urinary symptoms, or with a urinalysis showing pus or blood, should be subjected to an x-ray examination of the entire urinary tract. While this would mean a large number of negative roentgenograms, nevertheless the percentage of positive films in this group would justify the routine procedure.

Renal fluoroscopy at the operating table has now been employed over a period of four or five years, and the results more than justify its use. Although difficulties may arise in elevating the kidney so as to permit of complete fluoroscopy, the percentage of cases where this has been a serious obstacle has in our experience been less than 10 per cent of the patients operated. Even though the kidney is not completely elevated, it is surprising how clear the renal outline can be visualized through the surrounding superficial tissues. Renal fluoroscopy has proven to be of great value to the surgeon operating for multiple renal stones, not only in determining the presence of stones remaining in the kidney, but also as a guide in localizing them. The necessity of some such procedure will be realized if the surgeon will make postoperative roentgenograms of all patients who have been operated for multiple renal lithiasis. The percentage in which remnants are left in the kidney will be found to be very high.

Doctor Oppenheimer stated that, owing to the expense of installation of the equipment, but few men can afford to use the method. With the widespread use of the portable x-ray unit in many hospitals this objection should not be valid. It is not necessary to go to the expense of darkening the operating room as completely as ideal circumstances would desire. Although it is advisable for the roentgenologist to be trained in this field, nevertheless with a little experience a fair degree of ability can be acquired. I would urge a more general use of the method. In fact, it seems questionable whether any surgeon is justified in operating for multiple stones in the kidney without the use of renal fluoroscopy.

✱

GEORGE G. REINLE, M. D. (Dalziel Building, Oakland, California)—Doctor Oppenheimer has so well covered the subject of renal calculus that, from the standpoint of management of these cases, he has left but little to be added. He touched upon the subject of etiology, how-

ever, and this opens up a fertile field for interesting speculation.

The etiology of renal calculus is still a secret, but one which, when we do solve it, will add greatly to the assistance we will be able to render those who have the stone-forming habit.

Among the various theories advanced as the cause of calculus we have two which at this time offer the best hope of yielding profitable results:

1. The theory of infection as a cause is interesting, and local infection of the kidney probably does play some part in stone formation, though that is a primary cause and remains as yet unproved. Focal infection, particularly of the teeth, has been advanced by Rosenow as a cause, and holds out alluring possibilities though this also needs substantiation.

2. The colloidal theory, to my mind, seems at the present the most promising of results, though it is as yet also no more than theory. Schade discovered that where urates are held in colloidal suspension by the protective action of true colloids the further addition of urates causes no precipitation, and the urates are held in suspension. These suspended particles tend to accumulate at any point where surface tension is increased. A pellicle or "gel" is formed. This "gel" entangling the crystalloid in its meshes contracts, and so we may have the nucleus of a calculus.

Practical conclusions may ultimately be drawn from one or the other of these theories, or possibly from both, in which case we will have taken a forward step in the prevention of calculus if not in its cure after formation of the stone.

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JAMES R. DILLON, M.D. (490 Post Street, San Francisco)—The subject of urinary calculi has been very well covered in its different phases by Doctor Oppenheimer and discussed by Doctors Braasch and Reinle. One element in the diagnosis which has been particularly impressed upon me several times, is the technical part of exposing the film in taking the roentgenogram of the urinary tract. Practically all of our technicians are laymen, with little or no knowledge of the deeper anatomy or physiology. They merely place the patient and apparatus in the proper position and time the exposure according to the size and thickness of the patient. The roentgenologist will then render an opinion and sign his name to it from an interpretation of the film without ever seeing the patient, and frequently with no knowledge of the symptoms, or the reason for the roentgenogram.

Two cases have recently impressed this faulty system upon me. One was a bladder stone 6 cm. in diameter and 4 cm. thick, which did not show in three films preliminary to cystoscopy which showed it, and was later removed by a cystotomy. The second case was reported negative, and on my insistence was again studied by the roentgenologist, who made allowances for the bowel condition present, and a film was obtained showing clearly a stone 1 cm. in diameter in the lower pole of the kidney and a small one 3 mm. in diameter in the lower end of the ureter, which were later removed at operation. Correction of such errors will be obtained when the roentgenologists consider themselves more in the light of medical consultants, taking a more personal interest in the patient with possible urinary-tract lesions, and give a little more personal attention to the taking and retaking of films instead of mere interpretation of often faulty roentgenograms.

Anti-Snake Bite Serum Now Available—The first license ever granted for the production and interstate sale of anti-snake bite serum in this country was recently issued by the treasury department at Washington, upon recommendation by the United States public health service. The license was issued April 25, 1927, and marks the culmination of some ten months' intensive work on the part of Dr. Alfranio do Amaral—a Brazilian authority on snakes, snake venoms and antivenins—whose leave of absence from his official position has been extended to permit him to undertake the development of anti-snake bite serum in this country.—*Medical Herald and Physiotherapist*.

CHRONIC HEART DISEASE COMPLICATING PREGNANCY*

By ROBERT WILLIAM LANGLEY, M. D.
Los Angeles

DISCUSSION by Norman H. Williams, M. D., Los Angeles; Lyle G. McNeile, M. D., Los Angeles.

DURING the last five years several attempts have been made to compile accurate statistics concerning the course of a pregnancy complicated by heart disease. Earlier workers have reported a rather high and varying maternal mortality. These ideas have long needed accurate statistical confirmation. Recently Stander, Duncan, and Sisson confirmed the work of Boycott, Dunn, and Peters by studying the cardiac output in pregnant and non-pregnant dogs.¹ They concluded that the volume output of blood from the heart was markedly increased in the case of the former; being one-third to one-half greater than before. It appears probable that this increased output was maintained by taxation on the reserve force of the heart.

It would seem that in women also, pregnancy calls upon the cardiac reserve force.² Therefore the amount of available reserve is of prime importance in the determination of the mode of action to be pursued in all types of heart disease. Available statistics show that some types of heart disease are more prone to damage the heart muscle and to use up the reserve force than are others.³

Pardee⁴ in a report of thirty-five carefully selected cases found fifteen with serious failure and four deaths. Mitral stenosis was the most frequent lesion, with mitral regurgitation and aortic regurgitation next in order. He concluded that abortion is not often indicated and that with proper observation and treatment heart failure should not occur during pregnancy.

Campbell,^{5,6} working on the same subject over a number of years believes on the other hand that marriage and pregnancy are not justifiable in women with auricular fibrillation or myocarditis, and believes further that abortion and sterilization are always indicated in these conditions. He adds that each succeeding pregnancy still further damages a diseased heart.

A STUDY OF 33 COMPLICATED PREGNANCIES

Examination of the records of thirty-three pregnancies complicated by heart disease at the Los Angeles General Hospital shows that 29 probably suffered from organic heart disease; 14 mitral stenosis, 9 organic mitral regurgitation, 4 aortic regurgitation, 1 heart block, and 1 mitral and aortic regurgitation combined. In three the mitral stenosis was complicated by auricular fibrillation, in five associated with mitral regurgitation.

TABLE 2		Per Cent
Mitral stenosis	14	48
Mitral regurgitation	9	31
Aortic regurgitation	4	13.8
Mitral stenosis and aortic regurgitation.....	1	3.4
Heart block	1	

Examination revealed no enlargement in 13, slight

* Read before the Los Angeles Obstetrical Society, October 12, 1926.

enlargement in 7, moderate enlargement in 4, and considerable enlargement in 5.

TABLE 2

	Per Cent
No enlargement	13 44.8
Slight enlargement	7 24.1
Moderate enlargement	4 13.8
Considerable enlargement	5 17.2

Of the patients with considerable enlargement two had mitral stenosis and two had aortic regurgitation. One had mitral stenosis also and one mitral regurgitation alone.

Of the twenty-nine patients nine had evidence of heart failure during some part of gestation; of these, two died: one at five and one-half months of mitral stenosis following a therapeutic abortion, the other one month after delivery, of mitral regurgitation. In the group showing failure five had considerable enlargement and four only slight or moderate enlargement. In the failure group six had mitral stenosis, one mitral regurgitation, one mitral stenosis with mitral regurgitation, and one aortic regurgitation with mitral stenosis.

TABLE 3

ANALYSIS OF THE NINE FAILURES

	Per Cent
Mitral stenosis.....	6 66.6
Mitral regurgitation	1 11.1
Aortic regurgitation and mitral stenosis.....	1 11.1
Mitral stenosis and mitral regurgitation.....	1 11.1

This series of cases is entirely too small to establish a basis for conclusions, but the salient features of certain of them may be of some prognostic value. There were two deaths: one occurring at five and one-half months in a patient having a history of an old mitral stenosis with several previous attacks of failure, the other a patient with mitral regurgitation one month after a severe prolonged delivery.

NEED OF EARLY EXAMINATIONS

The most important factor in directing treatment is early and repeated examinations. Some attempt should be made to classify such patients according to the amount of work the heart can do. The classification adopted by the American Association for the Prevention and Relief of Heart Disease offers a basis upon which to work. By it patients are divided into one of the following groups:

1. Patients with organic heart disease who are able to carry on their habitual physical activity and whose exercise tolerance tests are good.
2. Patients with potential heart disease who do not have any suggestion of cardiac disease but who are suffering from an infectious condition which may be accompanied by such disease, eg., rheumatic fever, tonsillitis, chorea, syphilis, toxic goiter, etc.
3. Patients with organic heart disease who are able to carry on diminished physical activity as shown by exercise tolerance tests.
4. Patients with organic heart disease who are unable to carry on any physical activity as measured by exercise tolerance tests.

Exercise tolerance tests consist of climbing two flights of stairs of ten steps each without stopping or the raising of two five or ten-pound dumbbells from the floor twenty times. Symptoms to be looked for include unusual dyspnea, palpitation, an in-

creased pulse rate that does not return to normal within two minutes, continued elevation of blood pressure, etc.

TREATMENT IN GENERAL

Management will naturally be governed by the results of these cardiac reserve tests and should not depend upon the character of the heart murmurs. During the course of gestation examinations should be made with increasing frequency. Heart failure seldom comes on suddenly, but rather gradually over a period of days or weeks at the most. It may rarely come on during the hours of labor. In the event of beginning failure the early signs of increased pulse rate, lowered vital capacity readings, lowered exercise tolerance and appearance of fine moist rales in the bases of both lungs posteriorly become evident. These are the early signs of failure and should be treated vigorously in order to prevent the appearance of the more pronounced signs of edema of the extremities, enlargement of the liver, frothy blood-tinged sputum, cyanosis, etc. The best treatment during these early stages is absolute rest in bed, preferably in a hospital. Rapid digitalization should be produced by large doses of the tincture or the powdered extract of digitalis by mouth. Fluids should be restricted and a soft nourishing diet given.

Operative interference should always await the results of this régime. Medical management should be properly carried out until it is quite evident that the heart muscle is unable to be restored and carry on through the remaining period of pregnancy, however long that may be.

Whenever interference becomes a necessity the procedure must be aimed toward relief of the strain on the heart muscle as quickly and with as little work as possible. This general principle should apply at all times whether or not the patient is in labor.

If the patient has progressed into a severe heart failure operative procedures offer little hope. The added strain of manipulation may be the deciding factor in a death. The operative time should be chosen, if possible, just as carefully as it is in toxic goiter.

After a severe failure has been improved to the point of disappearance of the signs of congestion it may become necessary to advise the patient whether or not the pregnancy should be continued. This decision may be difficult to make. One should be able to state whether the patient is liable to develop severe failure during the labor and whether the heart will be further permanently damaged by this pregnancy. The decision may be made on the basis of the risk the patient wishes to take with her own life in regard to saving or losing the child. How anxious is the mother that this child be born?

TREATMENT OF PATIENTS IN THIS SERIES

As to treatment of the classes mentioned above it would seem advisable to terminate labor as soon as a diagnosis of pregnancy has been made in Group 4. Labor should be induced at the eighth month in those falling in Group 3 where the patients have carried through their pregnancies fairly well. Patients in Groups 1 and 2 should be treated expectantly.

Certain patients are seen in severe failure only during or at the beginning of labor. At these times

heroic measures become necessary. Rapid digitalization intravenously or intramuscularly or even strophanthin grain 1/200 may be given. Labor should be terminated by the shortest possible route. An expectant policy at this time is not advisable. Low forceps or low caesarean section, possibly under local anesthesia or combined with ethylene gas, should be employed.

The anesthetic must interfere as little as possible with the action of the heart and blood vessels.⁷ Nitrous oxide-oxygen gas should not be used because of its tendency to increase blood pressure in the early stages and because of the anoxemia associated with this particular anesthetic. The anesthetic of choice is ethylene-oxygen gas. Twenty to 25 per cent oxygen may be introduced, and no increased blood pressure has been demonstrated with this anesthetic and its influence on the circulation is small.

SUMMARY

It would seem from this study that abortion is rarely indicated in heart disease complicating pregnancy except where the patients are unable to carry on any physical activity. Such patients are not common.

Management will depend entirely upon the cardiac reserve force as determined by exercise tolerance tests and not upon the basis of the murmurs heard.

Surgical interference should never be withheld at any stage where the evident signs of failure do not disappear with diligent and thorough medical management.

From the facts brought out in this report it is believed that maternal mortality should be low where the heart condition has been recognized early and is properly treated.

1052 West Sixth Street.

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DISCUSSION

NORMAN H. WILLIAMS, M.D. (1052 West Sixth Street, Los Angeles)—Heart disease complicating pregnancy is a cause of anxiety on the part of the obstetrician and frequently calls for a nicety of judgment in the matter of treatment. It is amazing, however, in spite of the theoretical increased demand upon the cardiac reserve incident to pregnancy, to find a large percentage of these cases unaffected by pregnancy and labor.

In his analysis of failures Langley presents nine cases, eight of which had a primary or associated mitral stenosis. Of all the heart lesions it would seem that this is the most dangerous, with possibly aortic regurgitation coming second.

Whether or not exercise tolerance tests can be utilized in pregnancy as satisfactorily as in the nonpregnant state is questionable, particularly in the latter months of preg-

nancy. Pregnancy itself is conducive to general diminished vitality and reserve power, often resulting in dyspnea, tachycardia, etc., upon least exertion with no demonstrable cardiac deficiency.

In treatment of definite heart disease during pregnancy no general rule can be laid down, each case being a problem of its own. However, I believe it is very seldom that an abortion or induction is necessary, for often these procedures are quite as much of a strain as the labor itself, especially if the labor is conducted under analgesia or spinal anesthesia.

There is a type of case that Langley has not mentioned which often calls for mature judgment on the part of the obstetrician. I refer to the acute toxic cases, as those complicated by pneumonia, acute thyroidism, etc., particularly those appearing at or about term. Though these cases are not primarily heart conditions, it is the heart which requires special attention. In these, in the interest of the child as well as the mother, pregnancy should be terminated, and in such a way that will cause the least strain. Often a general anesthetic is contraindicated. It is in these that spinal anesthesia has its best field of usefulness. Under it the soft tissues of the pelvis become entirely relaxed, allowing, if necessary, an accouchement forcé to be performed with rapidity, with little or no strain to the patient.

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LYLE G. MCNEILE, M.D. (523 West Sixth Street, Los Angeles)—The necessity for a complete physical examination of every pregnant woman has often been emphasized, and too great emphasis can hardly be laid upon this point. It is only by careful and systematic chest examinations that the early case, or the advanced case whose heart is not decompensated, can be recognized. I regard early recognition and appropriate hygienic treatment as the most important factors in obtaining satisfactory end results in cardiac cases.

Advice to a patient upon the question of exercise, long walks, etc., can only be intelligently given after a careful physical examination, at which due consideration is given the present condition of the heart and its ability to withstand the additional strain of pregnancy, and the extraordinary strain of labor.

If at his preliminary examination any evidence of heart disease is found, detailed instruction regarding restriction of exercise and prescribed periods of rest should always be given. The progress of such cases can only be properly watched by repeated systematic examinations throughout the pregnancy.

In a considerable number of cardiac cases at the Chicago Lying-In Hospital it was found that the particular lesion was not of such great importance as was the state of the heart as to decompensation. It was seldom necessary to terminate the pregnancy. This has been our experience at the Los Angeles Maternity Service and at the Los Angeles General Hospital. The performance of a therapeutic abortion for cardiac disease is fraught with very considerable danger, and should seldom if ever be done without preparing the patient by absolute rest in bed, with indicated digitalization, for several days or weeks.

It is unwise to attempt to generalize in the matter of selecting a method of delivery for cardiac cases. The literature is filled with statements in which one author dogmatically assumes that no cardiac case should be subjected to the strain of labor, while another may go to the other extreme. Each case should be judged upon its merits, always bearing in mind that an already overworked but perfectly compensated heart may not be able to survive the strain of labor.

The danger to the patient may not be over at the termination of labor, and it is very wise to keep these patients in bed over a considerable period, and to supervise them for a year or longer. The question of permitting a cardiac patient to nurse her baby should be carefully considered. While it is true that in perhaps a majority of cases breast feeding may be permitted, lactation undoubtedly is a serious drain upon the mother who has an organic heart condition.

I believe Doctor Langley has presented this subject in a safe, conservative manner.

PROGRESS IN MEDICINE ON THE PACIFIC COAST DURING 1926-27*

By P. J. HANZLIK, M. D.
San Francisco

THE following brief summary of achievements in Medicine on the Pacific Coast is limited to recently completed research whose significance may be readily appreciated. In view of this restriction, and of the limited time for presentation, the summary is necessarily incomplete, and does not render full justice to the large activities in medical research here. Nor, is it possible, unfortunately, to mention everyone engaged in research, or instrumental in bringing to successful fruition or conclusion the results discussed. However, it is to be hoped that this record will serve as an inspiration to all in furthering the aims and objects of scientific medicine, whose special concern is the welfare of humanity.

The achievements fall into three general groups, which may be conveniently designated as follows: (1) Constitutional Factors in Health and Disease, (2) Treatment of Disease, and (3) Fundamental Investigations of Causes and Mechanisms of Biological Phenomena.

I. ACHIEVEMENTS IN 1926-27 AS REGARDS CONSTITUTIONAL FACTORS IN HEALTH AND DISEASE

This group includes the results of studies on dietary deficiencies (avitaminosis), sex development, reproduction, endocrin organs and heredity.

The body is essentially a community of self-regulated organs working in harmony, but the co-operations and interrelationships are not yet established for many organs and in the cases that are known, the mechanisms remain obscure. The endocrin organs present an alluring but rather difficult field for research in this line. With them the doctrine of interrelationship has been frequently invoked for want of better explanations of their functions, or reasons for existence, but the postulated mechanisms have frequently lacked the necessary or critical evidence. The importance of knowledge in this domain must be obvious, for it will give us not only a correct physiology, but it will also be valuable in facilitating the recognition of inharmonious actions as the cause of disease and promote rational methods of prevention and treatment. It is along these lines that some striking results have been achieved during the past year.

Heretofore, it has been generally believed that the removal of the pituitary gland has no effect on sexual development or function, but Prof. P. E. Smith of the Stanford Department of Anatomy has shown that the removal of the gland in the rat produces an invariable and characteristic syndrome, the chief features of which are inhibition of growth in the young or loss of weight in the mature animal, atrophy of the thyroids, adrenal cortex and sex organs, weakness and cachexia. Moreover, he

has found that these disabilities are curable by daily implantations of the fresh pituitary gland into the muscles. Cures are not obtainable with extracts or preparations of the pituitary, or with other organs, indicating that the action is specific and dependent on living gland transplants. Premature sexual maturity can be induced with only the anterior component of the pituitary, thus indicating an important hypophyseal-gonadal interrelationship, and giving a conclusive proof for the first time of the importance of this gland to the body. The method of live organ implantations bids fair to attain considerable popularity in endocrinology. It is now being used successfully in Europe with both the anterior pituitary lobe and the ovary.

Another possible interrelationship between the glands of internal secretion, or their products, is suggested from the results of Professors G. L. Foster and P. E. Smith of the Departments of Biochemistry and Anatomy of the University of California, which show that the greatest effect of thyroid therapy on basal metabolism occurs in animals deprived of their pituitary glands.

The adrenal glands, in some way, help to increase the resistance of the body to poisons and are themselves affected by removal of the kidneys. For, Doctors T. Addis and L. L. and E. M. MacKay of the Department of Medicine at Stanford have confirmed that the tolerance for morphin of rats deprived of adrenals is decreased. Furthermore, they found that increasing doses of morphin in normal rats cause a hypertrophy of the cortical portion of the adrenals. When experimental uremia was produced by removal of the kidneys, the adrenal cortex hypertrophied and such rats tolerated from 40 to 100 per cent higher doses of morphin than the controls. This observation squares up with the common clinical observation that uremic individuals often tolerate very large doses of morphin.

The same investigators found also that the feeding of high protein diets to rats increased the size of the kidneys. Their results indicate the inadequacy of the simple hypothesis of a work hypertrophy to explain the effect. According to Dr. F. R. Nuzum of the Santa Barbara Cottage Hospital, high protein diets in animals cause arteriosclerosis and increased blood pressure. These results justify the suspicion that high protein diets may be detrimental to health, and the limitations of such dietary in the treatment of nephritic and related conditions.

The influence of sex function on body weight and growth has long been suspected but not conclusively proven until recently. Prof. J. R. Slonaker of the Department of Physiology at Stanford has shown that female rats giving birth to large litters of young throughout life grew to 30 per cent greater weight than their virgin sisters, while males who indulged excessively sexually became markedly stunted. Weight and growth of rats can be increased to from 10 to 20 per cent steadily throughout life by the daily administration of exceedingly small quantities of iodide with their food, shown by myself and associates. This result is consistent with a decrease in metabolism caused by small doses of iodide, reported by German investigators. The results

* Report on Research before the Pacific Division, American Association for the Advancement of Science at Reno, Nevada, June 23, 1927.

From the Department of Pharmacology, Stanford University School of Medicine, San Francisco.

agree with the beneficial alterative effects of small doses of iodide claimed by physicians, veterinarians and others. Economically, the result should be of importance in the saving of feed for increasing the weight of livestock, as indeed already appears to have been tried successfully with pigs. The iodide administration must not be overdone, for large doses have the opposite effects of small ones. There are many unfounded beliefs among physicians and the laity about iodine. One notion is that small doses of it slow the pulse in normal individuals. However, careful observations by Dr. J. Marion Read of the Department of Medicine at Stanford of several normal individuals of both sexes receiving ten drops daily during ten-day periods of Lugol's solution containing iodine in iodide revealed no appreciable changes in pulse rate.

Equally important are the results of researches on vitamins and effects of dietary deficiencies. The curative efficiency in sterility of the fertility vitamin E (in wheat germ), discovered by Prof. H. M. Evans and associates of the Department of Anatomy, University of California, is found by the same investigators to be impaired by high-fat diets, notably after the use of lard, but not of butter. Presumably through some solvent influence fats may modify, therefore, the effects of this important dietary component. According to Dr. I. Manville of the University of Oregon Medical School, the addition of increased quantities of yeast to diets helps to prevent sterility.

It has not been sufficiently appreciated that certain so-called specific deficiency diets cause general organ and tissue injuries. Mother rats kept on a restricted vitamin B diet, though adequate for successful growth and reproduction, are not adequate for rearing of their young, for the latter die of cerebral and visceral hemorrhages and polyneuritis, according to Dr. C. U. Moore and associates of the Collins Nutritional Research Laboratory of the University of Oregon Medical School. Increasing the yeast in the diet materially reduces the mortality. Incidentally, these investigators found that curly kale was richer in vitamin B and iron than spinach. The gross and microscopic tissue changes in the experimental scurvy of guinea pigs studied by Prof. A. W. Meyer of the Department of Anatomy at Stanford, are characterized by necrosis, changes in teeth and cartilages, marked destruction of all muscles, nerves and blood vessels; fatty changes in the liver, kidneys, adrenals and lungs; hemorrhages in the central nervous system, and anemia with increased fragility of corpuscles. There is literally a dissolution of the body. It would seem that morphological studies in all dietary deficiencies are needed. Pyorrheal changes in teeth and gums have been reproduced in rats on deficient diets used by Dr. J. C. Marshall of the College of Dentistry of the University of California. Bacteriological studies of the same condition by Prof. T. D. Beckwith of the Department of Bacteriology in the same university show that there are numerous living forms, mainly streptococci, in the gums; and the periodontal membrane is capable of regeneration,

a hitherto disputed phenomenon, but now held to be valid.

Another factor for good or bad in our bodies is heredity. This will not be understood until various manifestations can be reproduced experimentally. Striking examples of recent achievements in this line are the production for the first time of hereditary obesity and of hereditary anemia in mice by Prof. C. H. Danforth of the Department of Anatomy at Stanford. The fat of these obese mice seems to be deficient in unsaturated fatty acids. In the anemic mice, the corpuscles are produced more slowly and disappear from the circulation more rapidly than in normal animals.

II. ACHIEVEMENTS IN 1926-27 AS REGARDS TREATMENT OF DISEASE

An important difficulty in the lead treatment of cancer introduced by W. Blair Bell of London has been the instability of the colloidal lead preparation. Doctors N. R. Blatherwick and F. E. Bischoff of the Santa Barbara Cottage Hospital have corrected this difficulty by dispersing the metallic lead electrically in the presence of glucose and gelatin by the classic Bredig apparatus, thus obtaining a colloidal preparation which keeps for months, is not sensitive to salts and does not increase in toxicity on standing. The dextrose prevents rapid oxidation of the lead, which appears to be the main source of trouble in obtaining stable products. This lead is an excellent reducing agent. The same investigators have further evolved a substitute, namely, a colloidal lead phosphate, which is relatively nontoxic and affects cancer tissue. Results with these colloidal leads have been obtained and careful studies made in thirty cancer patients to date by Dr. H. J. Ullmann of the Santa Barbara Hospital.

The troublesome yeast infections among fruit pickers and dealers, known as fruit poisoning in Oregon, can be cured by applications of thymol and other volatile oils according to Prof. H. B. Myers of the Pharmacology Department, University of Oregon Medical School. The same fungicides may be therapeutically useful in certain lung infections. Their fungicidal efficiency can be determined in vitro.

Ephedrin, the active alkaloid of the 5000-year-old Chinese drug ephedra, is one of the most useful recent additions to the therapeutic armamentarium for the treatment of asthma, local nasal conditions, hay fever and possibly low blood pressure in shock, but it is very expensive. The commercial alkaloid may not be uniform in composition or purity. The crude drug from which it is obtained must be imported. A domestic source of the crude drug, or a cheap synthetic ephedrin or substitute, would be desirable. Prof. G. W. Clark and associates of the Department of Biochemistry and Pharmacology, University of California have found that *Ephedra Californica* (Wats) growing in Fresno County, and *Ephedra Nevadensis* in Mohave and Colorado deserts, possess actions similar to the Chinese ephedra and ephedrin, but specimens of the Nevada variety, studied in our laboratory were inactive and did not contain the alkaloid. A promising substitute for ephedrin, and possibly for epinephrin, has

recently been synthesized by Dr. Gordon Alles, chemist in the clinic of Doctors George Piness and Hyman Miller of Los Angeles. The product is a phenylethanolamin with a toxicity one-third that of ephedrin, and an activity greater and more sustained on blood pressure than that of ephedrin and certain other amines. Contrary to the claims of others, ephedrin does not act by stimulating the sympathetic nerves like epinephrin. Its seat of action is in the muscle as shown by Dr. F. De Eds in our laboratory, for among other reasons, ineffective doses of cocain, which sensitize the sympathetic nerves and increase the blood pressure action of epinephrin, abolish the action of ephedrin.

A therapeutic method of standardizing preparations of digitalis in pigeons, which depends on establishing the minimal emetic dose per kilo, has been worked out by Mr. A. B. Stockton and myself. It has the advantages of simplicity and economy of time and material without sacrifice of accuracy over other bioassay methods. With this we have satisfactorily estimated the probable therapeutic dose for a sustained slowing of the heart in man.

The results of treatment of the blood and other infections with the dyes mercurochrome, gentian violet and acriflavine have been notoriously irregular, but Prof. Victor Burke of the State College at Pullman, Washington, finds that a number of controllable factors may be the cause of the irregularity, such as the method of preparation of the dye solution, its chemical reaction, stability, osmotic pressure, etc.; the dyes are bacterially selective and the combined action of the host and the dye on the bacteria should be considered. Certain fundamental principles in chemotherapy based on a study of staphylococci infections in mice treated with a series of mercury benzene derivatives have been established by Doctors E. L. Walker and A. M. Sweeney at the Hooper Institute for Medical Research, University of California. An exact relation exists between chemical constitution and therapeutic action; the two factors essential in the chemical constitution being toxophore and chemophore groups. The toxophore group may be either a toxic metallic element, like mercury, or a peculiar arrangement of non-toxic elements in the molecule. The chemophore group is divided into primary and accessory groups which, by themselves, may be inactive until introduced into the benzene ring. The relative position of the toxophore and chemophore groups to one another is essential for therapeutic activity. The therapeutic efficiency of the series of mercury compounds tested (against fatal infections in mice) varied from 0 to 100 per cent when the drugs were brought into immediate contact with the bacteria, but this was greatly reduced by indirect contact through the blood and tissues. Nevertheless, proper chemical manipulation of the molecule offers chemotherapeutic possibilities in the future, but a treatment for each bacterial infection may have to be developed independently.

III. ACHIEVEMENTS IN 1926-27 AS REGARDS FUNDAMENTAL INVESTIGATIONS OF CAUSES AND MECHANISMS OF BIOLOGICAL PHENOMENA

In this group have been placed a variety of results from the study of biological phenomena

which are intimately associated with or bear on problems in medicine.

Doctors O. B. Williams and F. R. Van de Carr of the Hooper Foundation for Medical Research, University of California, report that anaphylactic shock in the majority of guinea pigs can be prevented or ameliorated by the previous injection of heparin, a blood anticoagulant. This suggests that the cause of the symptoms is a physical one. Successful prevention of the shock in pigeons receiving heparin has been reported by Kyes and Strauser of Chicago, but Messrs. E. M. Butt and A. B. Stockton and myself have not been able to confirm this. Pigeons have served us admirably for studying the muscular responses in the allergic state; a reciprocal motor action of the two muscular coats in the anaphylactic crop has been discovered. This action occurs under physiological conditions and is indistinguishable from the actions of certain drugs in the normal crop so that from these and other results it appears the allergic muscular state represents only a quantitative change from normal without the elaboration of specific toxic products.

Using special experimental methods, Prof. W. H. Manwaring of the Department of Bacteriology at Stanford has obtained results which support the idea that injected antigens are changes by enzymes to many products to which adaptations exist, although they are not yet demonstrable. Contrary to previous claims, Prof. E. W. Schultz and associates of the Department of Bacteriology at Stanford have found that the viruses of vaccinia, rabies and herpes do not stimulate the production of complement-fixing and precipitating antibodies, but that the serums of immunized animals exert simply a neutralizing action similar to that of antitoxin for toxin. The method used insures the purity of viruses for the purpose. Toxins of the tubercle bacillus have been demonstrated in Berkefeld filtrates of cultures by Dr. Frederick Ebersson of the Department of Medicine, University of California. The substance in skin tests measures susceptibility or resistance to infection and an anti-serum has been prepared that neutralizes such skin reaction. The newly isolated substance, unlike tuberculin, is destroyed by heat and behaves in other respects like a toxin.

According to Prof. J. P. Baumberger of the Department of Physiology at Stanford the clotting of blood varies with its carbon dioxide tension, the clotting of shed blood being more rapid as the CO_2 falls. Prof. O. Larsell of the Department of Anatomy, University of Oregon Medical School finds that injected nuclei and nucleic acid stimulate the blood-forming organs.

Summaries of several years' studies in climatic physiology have been made by Dr. E. S. Sundstroem of the Department of Biochemistry, University of California, in which the results of adaptation, blood composition, pigmentation and reproduction in rats, and on the adaptation of the white man to the climate of North Queensland, are discussed. In the first generation of rats kept under tropical conditions reproduction was interfered with, but was improved in succeeding generations.

The dye rose bengal introduced by Dr. G. D.

Delprat of the University of California Medical School and Hospital for testing liver function, or rather its selective permeability according to my interpretation, is the most satisfactory agent of its class and for the purpose. The normal liver removes the dye so rapidly from the blood stream that only traces remain in the blood at the end of sixteen minutes, but the removal is greatly impaired in obstructive jaundice, catarrhal jaundice and in arsphenamin icterus, and in advanced cirrhosis and acute infections of the liver in man, according to Doctors N. N. Epstein, G. D. Delprat and W. J. Kerr of the Department of Medicine, University of California, who have used the dye as a valuable aid in diagnosis and prognosis. In dogs, hepatic permeability of the dye is well known to be diminished after chloroform anesthesia; and also in circulatory disturbances of the liver, in shock and after certain drugs, especially those in the colloidal state such as agar and colloidal silver and arsphenamin in therapeutic doses, which block the liver directly without other causes, as shown by Doctor De Eds and myself. The gall bladder, according to Prof. G. E. Burget of the Department of Physiology, University of Oregon Medical School, is not concerned in the regulation of bile flow.

In the surgery of large vessels a new principle has been discovered by Dr. Emile Holman, professor of surgery, in the Stanford School of Medicine. This requires that under certain circumstances ligation of the main artery to an extremity should be accompanied by ligation of the main vein in order to decrease gangrene formation.

During and following severe muscular exercise lactic acid appears in abnormal quantities in the blood, but the urine does not always show it. Doctors A. W. Hewlett, G. Barnett and H. K. Lewis of the Stanford Department of Medicine seem to have explained this discrepancy by the demonstration of a renal threshold value for lactic acid somewhat as there is for glucose; that is, urine lactic acid can only be demonstrated when there is a considerable excess above the normal. A demonstrable decrease in blood lactic acid occurs during inhalation of air enriched with oxygen, thus diminishing the possible effects of the traditional "fatigue product" in muscle.

Biochemical studies by Prof. C. L. A. Schmidt and associates of the Department of Biochemistry, University of California, indicate that the non-diffusible calcium in blood is bound to the serum proteins; that dyes unite with proteins in stoichiometric proportions thus controverting the older idea of adsorption. The same investigators devised for the first time a liquid medium for, and studied the metabolism of, the hemoflagellate *Leishmania tropica*.

A unique, and modifiable, elevated skeleton maze, permitting direct and detailed observation of the behavioristic intelligence of rats without assistance from extraneous factors, has been devised by Prof. W. R. Miles of the Department of Psychology at Stanford. It will promote greater accuracy in the objective study of various conditions, habituations,

drugs, etc., on behavior than has been heretofore possible.

In parasitology, Prof. C. A. Kofoed of the Department of Zoology, University of California, reports the discovery of *Endameba dysenteriae* in bone marrow in Ely's second type of arthritis deformans and in the lymph glands in Hodgkins' disease.

Spider poisoning, especially from the *Black Widow* in California, is more common and serious than has been generally supposed, according to clinical and experimental studies of Dr. Emil Bogen of Los Angeles. Although the bite is rarely fatal, it causes severe illness characterized by an excruciating pain spreading over the entire body, beginning most commonly in the genitalia of men accidentally bitten and becoming especially severe in the abdomen, legs and back, accompanied by nausea, vomiting, constipation and abdominal rigidity lasting twenty-four hours with complete recovery after several days. Treatment is by narcotics; and possibly by a serum which, however, remains to be developed.

Stanford University School of Medicine.

THE TREATMENT OF EMPYEMA *

By E. ERIC LARSON, M. D.
Woodland

DISCUSSION by Leo Eloesser, M. D., San Francisco; Charles E. Phillips, M. D., Los Angeles; Ben E. Grant, M. D., Los Angeles.

ONE of the important lessons learned during the World War was the type of operation to be done for empyema as well as the proper time for it to be employed. The old method of thoracotomy, with or without resection of a rib, disregarding pneumothorax or the time of operation, yielded a mortality of 45 per cent in fifty cases. With more conservative treatment, delayed operation and more careful study of patients, the mortality of the next fifty was lowered to 28 per cent. Further modification of treatment by the use of hypochlorite solution in early lesions lowered the mortality to 10 per cent in the next 133.¹ Several surgeons since that time have repeatedly reported mortalities ranging from 2 to 12 per cent.

The early recognition of the condition and its cause are fundamental, for upon this knowledge is based appropriate and efficient treatment, which is further dependent on a clear and definite distinction between acute and chronic empyema. In the acute infections treatment should embody principles directed toward support of the patient's poor general condition and also a prompt and efficient cure. When chronic, treatment in addition should be directed to preventing prolonged morbidity and deformity.

ACUTE EMPYEMA

Acute empyema usually results from adjacent lung inflammation. It may result from general infection or from more distant suppuration. One-half² to two-thirds of all pleural suppurations are due to pneumococcus and one-fourth to streptococcus.

* Read before the General Surgery Section of the California Medical Association, at the Fifty-fifth Annual Session, April 28 to May 1, 1926.

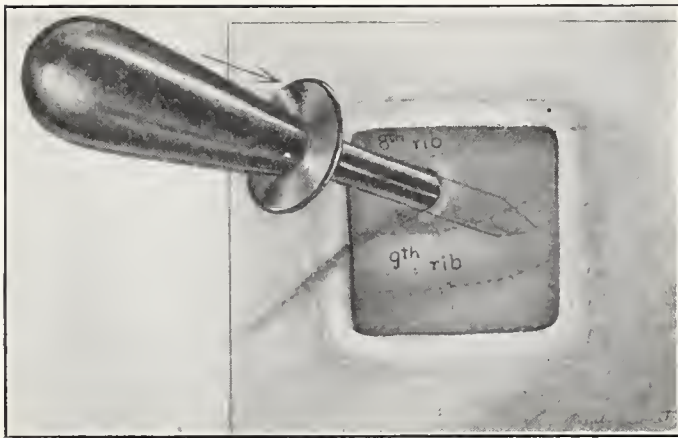


Fig. 1—Insertion of trocar between eighth and ninth ribs. Usually more advantageous points are necessary for drainage.

Typical acute empyema follows lobar pneumonia and is of pneumococcus origin. The fluid is cloudy, thick, appears quite early, is of small quantity, contains an abundance of fibrin and walls off quite readily.

The acute streptococcus empyema usually accompanies bronchopneumonia and is more severe because of the spreading lung inflammation. The pus is thinner, of large quantity, loaded with bacteria, and the tendency to encapsulation into an abscess is markedly delayed.

The first essentials in the diagnosis and treatment should include careful study of the patient, an accurate history and detailed physical findings, supported by x-ray data and finally by aspirations of pus, the character of which is ascertained by direct smear and culture. The condition of the underlying lung as well as that of the opposite side, with particular attention also to the general condition of the patient, should decide the order of procedure.

Simple drainage by needle aspiration may greatly assist an embarrassed circulation and tide the patient along for a few days, allowing the lung condition to subside and the infection to become walled off. Thus a general empyema with the increased problem of cavity obliteration is often averted. Early deaths are not alone due to absorption but rather to the collapse of the air-bearing lung tissue. Therapeutic aspiration, which gives relief, but rarely cures, can be done every twenty-four to thirty-six hours, depending on the condition of the patient. The use of chemical therapeutics can then be considered. Major³ reports 51.8 per cent cures in twenty-seven cases by the use of gentian violet. He injects 100 cc. of 1 to 1000 solution, gradually increasing the strength to 1:250 in subsequent instillations.

After trying these more simple methods without cure the closed operation, introduced by Bülow⁴ in 1891, should be done. We use the army trocar (Fig. 1), following the method of insertion perfected during the war.⁵ Under local anesthesia I try to insert an airtight tube just inside the cavity and at a level that will give gravity drainage and still eliminate the possible formation of a valve fistula by shrinkage of the cavity.

The success of the closed operation depends largely

on three factors: thorough drainage, prevention of pneumothorax, the use of Dakin's solution.

Thorough drainage maintained by constant suction is the ideal method of evacuation of the cavity, decompression of course being done gradually during the first twenty-four hours when dealing with a large collection of fluid. With this in view I have had constructed an apparatus (Fig. 2), which fulfills all expectations, but examination of the literature reveals that practically a duplicate of this apparatus was used by Van Hook⁶ twenty-five years ago. His bottle vacuum is maintained by water pump, while in my apparatus an ordinary bicycle pump is used. A mercury manometer is attached to indicate the degree of vacuum pressure which shows the efficiency of drainage and any possible leakage of air. With this apparatus I have been able to evacuate thoroughly the cavity as well as promote constant negative pressure. Irrigation of the cavity with solutions can also be done by clamping the tubes and disconnecting the apparatus. Moreover, by this method the treatment can be continued at home under the care of an efficient nurse, thus curtailing hospital expense in protracted illness. During the past year a newer contrivance, simpler and less cumbersome, has been introduced by Soresi.⁷

Prevention of pneumothorax is very important, for if it arises and persists, resection of a rib with open drainage is the method of choice. Careful insertion of the tube under local anesthesia can be

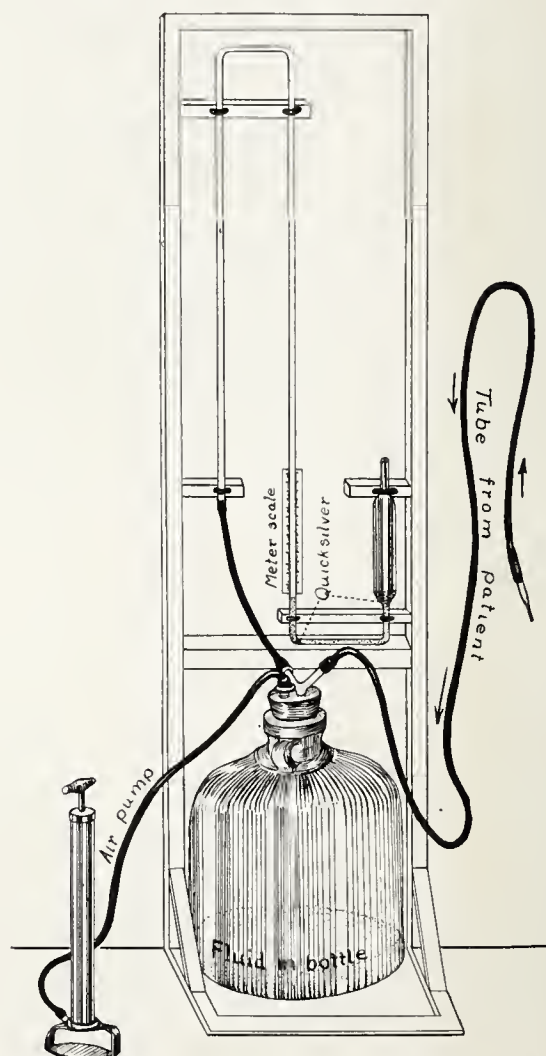


Fig. 2—Suction apparatus, which can be used at home in competent hands to promote constant and complete drainage.

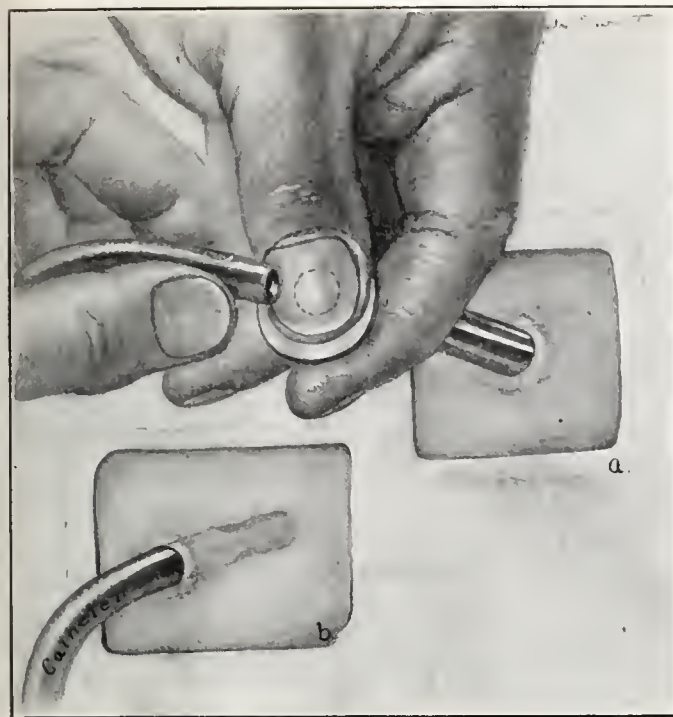


Fig. 3—(a) Trocar removed and catheter inserted through sheath into empyema cavity. (b) Sheath removed, leaving tube in place.

done so as to prevent influx of air (Fig. 3). The catheter should fit tightly into the sheath of the trocar and the tube be carefully clamped.

There are many methods of making the tube air-tight within the chest wall. A large rubber dam tied tightly around the tube and glued to the skin is used by many surgeons. Some prefer to pack gauze about the tube and cover well with adhesive tape. The use of metal supports is reported successful. My best results are obtained by using colloidin and cotton packed tightly around the tube on to the skin and supported by strips of adhesive tape.

The third important point is the use of Dakin's solution. Stephens⁸ claims decided advantage from its use because it diminishes the fibrous tissue over the lung, allows the lung to expand, removes the fibrin and necrotic tissue, sterilizes the cavity and prevents sacculation and hidden cavities. The solution must be fresh, sterile and contain about one-half per cent available chlorine. The contraindications to Dakin's solution are pleural hemorrhage and pleuro-pulmonary fistulas. My experience supports Stevens's⁸ claim that the use of Dakin's solution insures a 90 per cent decrease of the cavity in about forty days.

The position of the tube is important. The usual site of insertion between the eighth and ninth ribs in the axillary line kept several patients from a rapid recovery because, as seen in Fig. 6, there extended a long sinus leading upward to a large cavity. In such patients an opening between the fifth and sixth ribs would have been more advantageous.

After thorough closed drainage has continued for several weeks it may be necessary to unroof a small remaining cavity by rib resection. Care in making the opening of sufficient size to permit coaptation of the skin and pleural surfaces will prevent too rapid closure of the wound (Fig. 5). The cavity should be explored, opening all pockets and remov-

ing the loose fibrin and necrotic tissue. If necessary a skin graft can later be used to cover the defect. Bronchial fistulas, which sometimes occur, should be given two or three months for spontaneous closure. Closure of these fistulas can be hastened by chemical irritation, suture, or the actual cautery.

CHRONIC EMPYEMA

Chronic empyema usually means an unrecognized or neglected acute suppuration, an improperly treated or badly operated acute empyema. The time that should elapse before an uncured empyema may be called chronic varies from three to twenty-four weeks. Among surgeons I agree with Hedblom⁹ and others, who fix twelve weeks as perhaps the most advisable limit.

In deciding the course to follow it is most important to ascertain the cause for chronicity. Tuberculosis, syphilis, actinomycosis, nondraining pockets, thickened visceral pleura, foreign bodies and osteomyelitis, all must be searched for. The aim should be to re-expand the lung to the chest wall rather than collapsing the thorax against the lung. Lockwood¹⁰ arbitrarily makes the rule that cavities containing over three ounces should be treated by efforts to re-expand the lung, and cavities under three ounces should be treated by unroofing the cavity.

At the Woodland Clinic during the past year I have been using lipiodol injections into the sinuses and cavities for x-ray studies in preparation for operative procedure. The suspension readily enters all pockets and traverses sinuses, producing a dense and unmistakable shadow (Figs. 6 and 7). It is non-irritating to the pleura, and in the detection of pleuro-pulmonary fistulas I believe its use has facilitated greatly in making a thorough exposé of the conditions which should be understood before decision to operate is made.

A chronic, encapsulated empyema with intact thoracic wall should not be hurriedly dealt with. Efforts at reduction of the size of the cavity should be attempted by aspiration and closed drainage. Pickhardt¹¹ recommends resection of a rib; exploration of the cavity; cleansing of the cavity with a 0.1 per cent iodoform ether solution; insertion of a

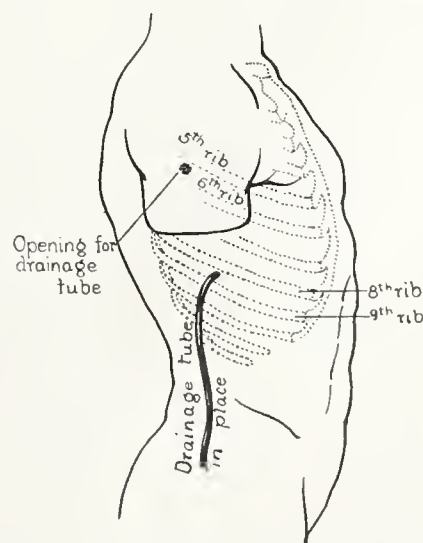


Fig. 4—Usual site for the introduction of closed drainage between eighth and ninth ribs. It is often necessary to drain between fifth and sixth ribs.

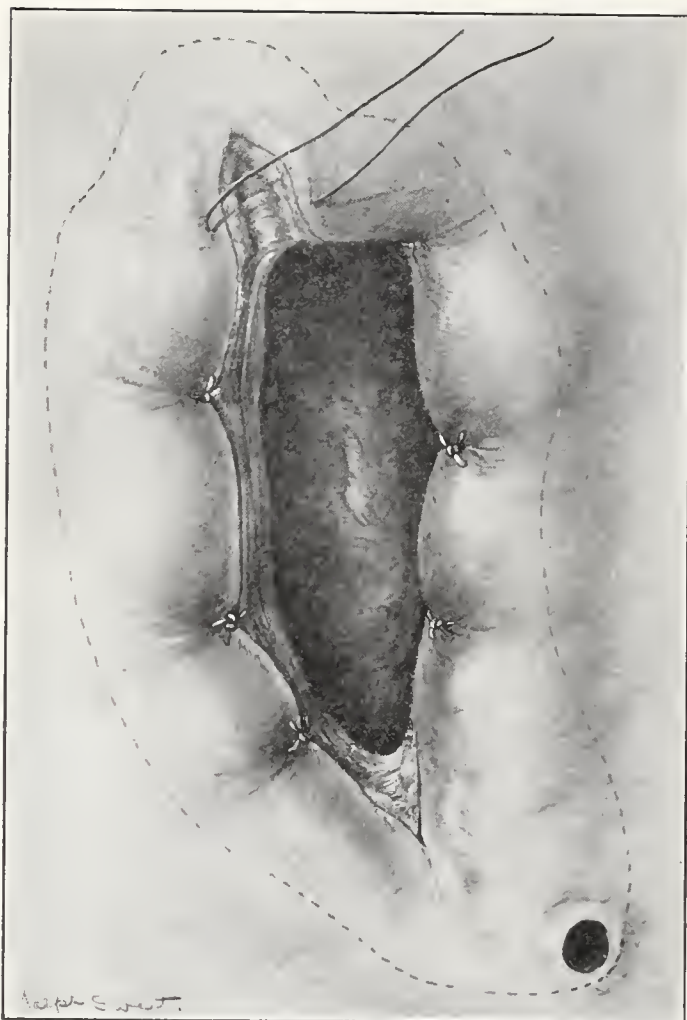


Fig. 5—After resection of rib the skin is approximated to the parietal pleura and the ends of the rib are well covered.

tube for closed drainage below and suturing of the wound in layers, the wound usually healing by primary intention.

Persistent cavities that have been efficiently drained and sterilized for several months should be treated by more radical measures. Thoracoplasties of the Wilms, Schede and Estlander types may be resorted to, but usually are not necessary. Decortication of the lung by expert surgeons, when followed by complete expansion of the collapsed portion, is one of the most satisfactory of operations.

REPORT ON 14 PATIENTS TREATED

During the past year I have treated fourteen patients with empyema at the Woodland Clinic. They were all acute types. The bacteria found were: pneumococcus 7, streptococcus 4, staphylococcus 1, colon 1, combination of proteus and streptococcus 1. There was one death, and that was the proteus-streptococcus infection in which the empyema followed operation for a lung abscess situated in the apex of the right lung. I attribute this death to bad surgical judgment in draining the abscess in a one-stage operation. At the operation I believed that the pleural surfaces were adherent, but an empyema in the right pleural cavity several days later revealed the mistake.

In the management of all patients I was careful to adhere to the principle stated earlier in this paper, that after the diagnosis is made the aim should be

treatment by simple measures such as ample and repeated aspiration until the lung condition subsides sufficiently to allow closed drainage. Closed drainage with Dakin's irrigations was instituted in every instance. Also in eleven of the fourteen patients it was necessary to resort to further operative procedure such as rib resection. There is much in the literature regarding complete cure by closed drainage, but I have been unable to prevent a small cavity due to pneumothorax caused by the leakage of air around the tube after five to seven days. I feel that the suction apparatus was a distinct advantage for these few days at least.

Bronchial fistulas occurred in three of my patients. Two closed spontaneously and chemical irritation with silver nitrate was employed to hasten closure of the third.

One patient, 74 years of age, in whom an unrecognized empyema had existed for several weeks had closed drainage, then rib resection. Because of the non-expansion of the underlying lung either a decortication or collapse operation will have to be done in about three months.

A high caloric diet, supplemented in several of my patients by one or more blood transfusions, was instituted because of their sepsis, anemia and weakness. Aside from the operative procedures necessary I consider these two measures of the utmost importance. It is also absolutely essential to get the patient out of bed as early as possible and teach him exercises for thoracic expansion and correction of deformity.

SUMMARY

Fourteen patients with acute empyema and one death, a mortality of 7.14 per cent, forms the basis of this discussion.

The diagnosis of an existing empyema, or the anticipation of this condition, is the most important factor of all.

Acute empyema should be treated by simple measures, such as repeated aspirations, closed drainage, thoracotomy later if necessary.

Chronic empyema should be treated so as to prevent morbidity and deformity. Expanding the lung to the chest wall rather than collapsing the chest wall to the lung should be emphasized.

Employment of a constant suction apparatus to facilitate cavity collapse is of great advantage.

I would emphasize the value of irrigation with Dakin's solution.

The injection of lipiodol into a cavity is a very effective method of ascertaining the complicating factors which promote chronicity.

A high caloric diet is necessary. Blood transfusions are often required. Exercises are important to facilitate lung expansion and secure minimum deformity.

Woodland Clinic.

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Fig. 6—Case No. 12509. Lipiodol injection. Long fistulous tract caused by improperly situated tube.

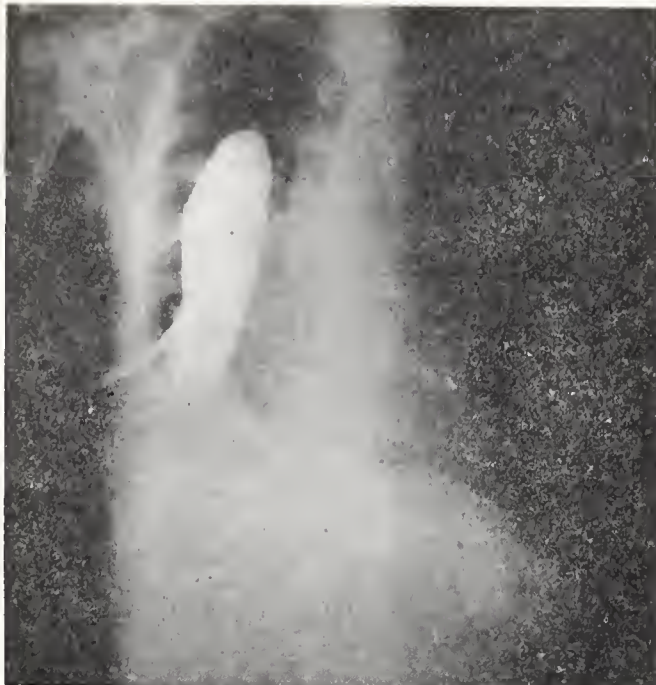


Fig. 7—Case No. 12848. Lipiodol injection. Drainage tube situated correctly.

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DISCUSSION

LEO ELOESSER, M. D. (490 Post Street, San Francisco)—It is consoling to one who has struggled with closed drainage methods to find that Doctor Larson had to supplement the closed method in eleven out of fourteen patients with rib resection. One sees that even in so well conducted a clinic as the Woodland one the trocar stab drainage is anything but easy. It is very satisfactory when it works, but often it does not. It needs constant watching, a trained personnel and skill.

I agree with Larson that exclusion of even the smallest bubble of air, not only at operation, but during the whole subsequent course of treatment, is most important and in the later stages, when the tube begins to loosen in its canal, almost impossible to achieve. Once air enters the chest it cannot be gotten out, and the pyopneumothorax will not heal except after rib resection.

Other unavoidable mishaps—a bit of fibrin stopping the tube, kinks, or the patient's lying on it—make a vacuum drain useless, for we must remember that if a drain

doesn't drain it plugs, and plugging a chest with a foreign body is bad. Rib resection is usually easier to handle.

In answering the question whether and when to drain an empyema: If the dyspnea is more than can be accounted for by the quantity of exudate, wait. The dyspnea is probably then not the result of the empyema, but of the underlying pneumonia and the chest is not ready for drainage.

Colonel Keller's method of treating chronic empyema gives surprisingly good results. The decortication operations are difficult and often disappointing. Not every lung should be brought out to the chest wall—the tubercular ones of course not. One can recognize tubercular empyema clinically by the collapse of the lung and its tendency to stay collapsed. In other empyemas, pneumococcal, streptococcal, staphylococcal, the lung comes out toward the chest wall all by itself. It may not quite obliterate the pleural cavity if there is some chronic focus of supuration, a walled-off abscess or a foreign body in it, but even so it shows a great tendency to.

✽

CHARLES E. PHILLIPS, M. D. (523 West Sixth Street, Los Angeles)—There is no problem in surgery that calls for the exercise of keener judgment or more prompt action than that required in the treatment of acute empyema.

Epidemics of infectious and contagious diseases vary extremely in degrees of virulence. One characteristic, more or less common to all, is the lessened severity as the epidemic subsides. With the faith of a Crusader, in his remedies, the physician is very prone to attribute the lessened mortality rate to his latest treatment.

Lilienthal in his recent work on thoracic surgery (Vol. I, p. 163), seems to follow the same line of reasoning. He notes the results in three series of cases in army camps, as follows:

1. First series, early operation, eighty-five cases, with a mortality of 61.2 per cent (October 20, 1927, to January 12, 1918).

2. Second series, early aspiration and later operation, ninety-six cases; mortality 15.6 per cent (January 12, 1918, to August 10, 1918).

3. Third series, early aspiration and late operation, ninety-four cases; mortality 9.5 per cent (October 18, 1918, to February 14, 1919).

He apparently attributes the improvement in the mortality rate to the treatment employed. A fair comparison might be drawn between the influenzal epidemic of 1918 and that of the succeeding years. The high mortality

in the former was not lowered in the subsequent years so much by the treatment employed as it was by the lessened virulence of the infection.

Treatment—We choose a line of treatment on the following:

1. Rationale. It should be logical.
2. Simplicity. The simpler the method the less chance of error.
3. Results. The acid test of all should be the results accomplished.

Considering the problem under these three heads, we arrive at the following: Normally the negative pressure is slight. Opening the chest in a normal individual gives rise to few symptoms outside of an increase in the respiratory rate. In the patients suffering from a pneumonitis with the bulk of the lung greatly increased by swelling, and by the products of inflammation in addition to the purulent accumulation within the pleural cavity, the negative pressure within the chest becomes a positive one. Opening such a chest should give rise to almost no shock. It puts the affected lung to rest. It checks absorption. It can always be performed quickly, easily and painlessly by the employment of a local or regional anesthetic.

We come to the comparison of results. I would like to quote our results obtained on the Canal Zone during the construction of the canal:

- 1910—13 cases with 1 death.
- 1911—13 cases with 1 death.
- 1912—15 cases with 2 deaths.
- 1913—14 cases with 2 deaths.

A total of fifty-five cases with six deaths, as published in the Annual Reports of the Isthmian Canal Commission. When we take into consideration that many of these were suffering from intercurrent diseases, malaria, dysentery, etc., and practically all with varying grades of anemia; they were treated in wards where careful nursing and individual care was practically impossible; and all were treated by the open method and without the advantage of Dakin's solution, these results compare quite favorably with the best that can be shown by the closed method of treatment.

My conclusions are:

1. The mortality rate varies directly as the virulence of the infection with either method of treatment.
2. Operative interference must not tax the strength of the patient.
3. Carrel Dakin treatment offers the greatest advance in the treatment of a suppurative pleuritis.
4. The relief of pressure from purulent accumulations and rest to the sick lung is of greatest importance.
5. The early relief of pressure favors rapid expansion and complete recovery.

Closed method of treatment is indicated: (a) In desperately ill cases with small accumulations of fluid. (b) In neglected cases with great accumulation of fluid. (c) Where the pleuritis is due to, or complicated by, tuberculosis.

The treatment of choice is the early open thorocostomy and Dakin treatment of the cavity.



BEN E. GRANT, M.D. (1012 Brockman Building, Los Angeles)—The variance of mortality statistics usually ascribed to this or that method of treatment of empyema is no doubt due to the virulence of the various infecting organisms. This will also explain the heated discussions for and against early tapping and the merits of thoracentesis and rib resection. The mortality lists of well-equipped hospitals usually vary according to the stage and type of infection with which each patient is afflicted. The deciding factor in determining the procedure should be the condition of the patient.

The margin of safety in rib resection in the early acute cases is very narrow, because of accompanying shocks. Careful aspiration with the trocar seems the best method of procedure. In addition, at this time autogenous vac-

cine might be used to build up more resistance and further prepare the patient for further investigation.

In the milder types with less virulence repeated tapings may be all that is required; however, later, if pus persists, a thoracotomy is the best line of procedure.

The resulting dangers from pneumothorax are much more acute in the early stage, and for this reason watchful waiting, with repeated aspirations, is, to my mind, the safest way to care for these cases.

Irrigations with Dakin's solution after surgery can be considered where the pus is very thick and drainage blocked. It is also the best stimulant for healing, although some care should be exercised to avoid any irritation to the inflamed surfaces.

Results depend upon the existing complications and individual resistance.

Doctor Larson is to be congratulated on the low mortality rate of this group. It certainly shows what can be done in a well-organized clinic. His percentage of final thoracotomies is in harmony with reports from other well-recognized clinics.

CERVICITIS, WITH SPECIAL REFERENCE TO ITS TREATMENT

By WILLIAM E. HUNTER, M. D.
Salt Lake City, Utah

DISCUSSION by Fred R. Fairchild, M. D., Woodland, California; J. U. Giesy, M. D., Salt Lake City, Utah.

CERVICITIS is often spoken of as endocervicitis, erosion, pseudoerosion, ectropian, eversion, and sometimes ulceration of the cervix. Such terms are misleading, for they give the impression that the inflammatory lesion is limited to the lining of the cervix, particularly the exposed cervical mucosa. This is incorrect, for the pathological changes penetrate deeply into the musculofibrous tissue of the cervix and outward onto the squamous epithelium that covers the exposed cervix. In severe cases the inflammatory reaction extends into the parametrium and upward by lymphatic extension upon the tubes and ovaries. The lesion is not one of erosion or ulceration but one of cell proliferation. The eversion is the result of cell growth with scar-tissue formation beneath which causes the cervical endo-epithelium to roll out or evert.

HOW THE CAUSES ACT ON CERVICAL TISSUE

Cervicitis is always the result of bacterial invasion of the racemose glands of the cervix following trauma from childbirth or by the invasion of the gonococcus which has the power of burying itself between the cells of normal mucous tissue. In a few patients it follows a developmental defect which exposes the cervical glandular tissue to the acid secretion of the vagina (congenital pseudoerosion). Normally the upper vagina and cervix are free from pathogenic organisms. The acid secretions and the pavement epithelium of the vagina present an effective barrier against bacterial extension upward. Curtis has shown that the body of the uterus is practically immune against bacterial invasion, but that the mucus-secreting epithelium of the cervix with its numerous glands is susceptible to infection and will harbor germs for years. Following injury to the cervix, the columnar epithelium pushes outward and replaces the squamous epithelium beyond the external os. This new epithelium has the power



Surgical removal of the infected area of the cervix

of forming new glands on the exposed surface. These glands soon become infected and as time goes on the infection extends upward into the contiguous glands of the cervical canal. Hyperplasia of the columnar epithelium with new gland formation gives rise to the edematous red area seen by visual examination. The round-cell infiltration and engorgement of the blood vessels and lymph spaces give rise to the fibrosis and hypertrophy in the body of the cervix. The end result is constant cell proliferation and chronic inflammation on the exposed surface, and hypertrophy and fibrosis in the body of the cervix.

Sturmsdorf and Curtis have shown that the extent of the lesion depends upon the virulence of the infecting organism, and not upon the extent of the laceration. The inflammatory process is always more active in the torn lip than in the scar. It has also been demonstrated that cancer of the cervix never begins at the site of laceration, but in the irritated area on the exposed lip.

Cervical disease most often asserts itself clinically as leucorrhea, the most common complaint of women in the childbearing period. Fully 75 per cent of parous and 25 per cent of all nonparous women suffer to some extent. The extension of inflammation by the lymphatics into the parametrium is often the cause of premenstrual and comenstrual pain, dyspareunia, and backache. The absorption of toxic substances by the occlusion of the infected glands frequently causes anemia, general debility, and genital neurosis. There is no doubt but that the constant irritation and stimulation to cell proliferation predisposes to cancer formation. Bonny has never failed to find evidence of a pre-existing erosion in all early cancers of the cervix. At the same time it

is well to bear in mind that approximately 25 per cent of all cancer is in the cervix. In many women the stringy, sticky mucus discharge is the cause of delayed impregnation and sterility. Unfortunately this condition is not self-limited. These patients form a good part of the "office habitues" who apply for treatment week after week and flit from doctor to doctor. The range of treatment runs the gamut from topical application to extirpation of the cervix and even hysterectomy. The divers methods of treatment are sufficient proof that the treatment of the disease is not universally successful.

THERAPEUTIC MEASURES

Since the disease is an infective process limited to the glands of the cervix it is reasonable to assume that the eradication of the foci of the infection will successfully cure the patient. This is exactly what happens. In mild cases topical applications of silver nitrate, tincture of iodine, zinc chloride, phenol, or potassium hydroxide will cure. If the chemical is strong enough to destroy all the infected glands from the internal os to the healthy mucosa it will cure in the average severe infections. In mild infections passive hyperemia may empty the glands and stimulate the healing process, but in the presence of active inflammation it is likely to aggravate the condition. Radium if used in sufficient dosage to destroy the glands may be efficient. Unfortunately it is impossible to prevent the rays from injuring the muscular tissue of the cervix, so that there is always danger of cicatricial contraction and stenosis. There is also danger of producing an acrid discharge which may irritate the vagina and vulva. In my hands radium has never been satisfactory in the treatment of leucorrhea. Burns claims good results in the

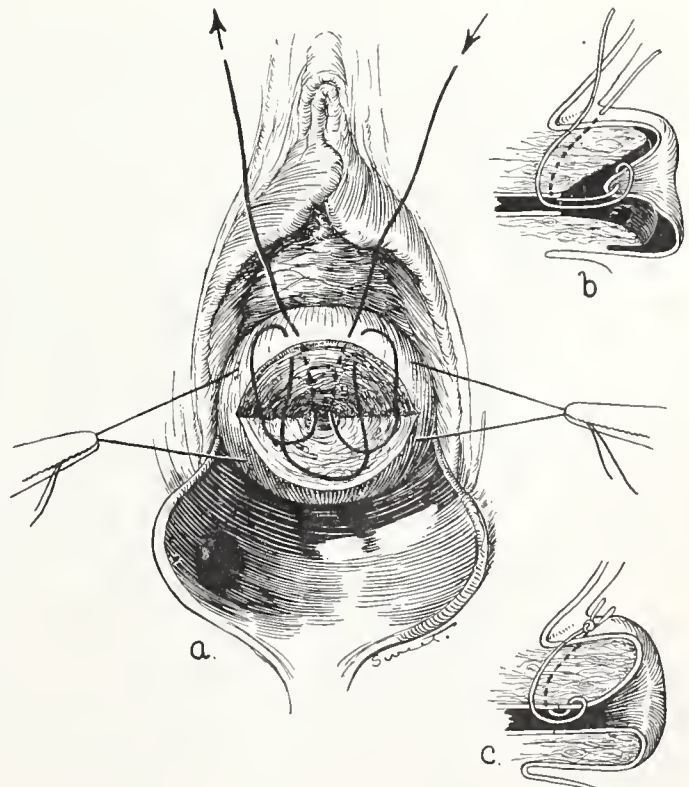


Diagram illustrating method of covering denuded area with mucous membrane

treatment of leucorrhea by ionization, but says this does not cure erosion. Vaccines are worthless.

Like all other methods, the success of operation depends upon the removal of the foci. Curetage does not reach deep enough. Tracheloplasty is aimed at correcting the anatomical defect instead of removing the infection. Amputation of the cervix, if high enough, is undoubtedly successful but mutilating. Sturmsdorf's removal of the cervical mucosa is the least radical procedure which acts thoroughly and effectively. The disadvantage of the latter operation is that it requires a certain amount of surgical skill and hospitalization. In summing up the Hopkin's series, Magid found that trachelorrhaphy did not relieve endocervicitis, while curative amputation was followed in four-fifths of the patients by sterility; one-half of those who became pregnant aborted and the remainder suffered dystocia. He claims that Sturmsdorf's operation obviates all this.

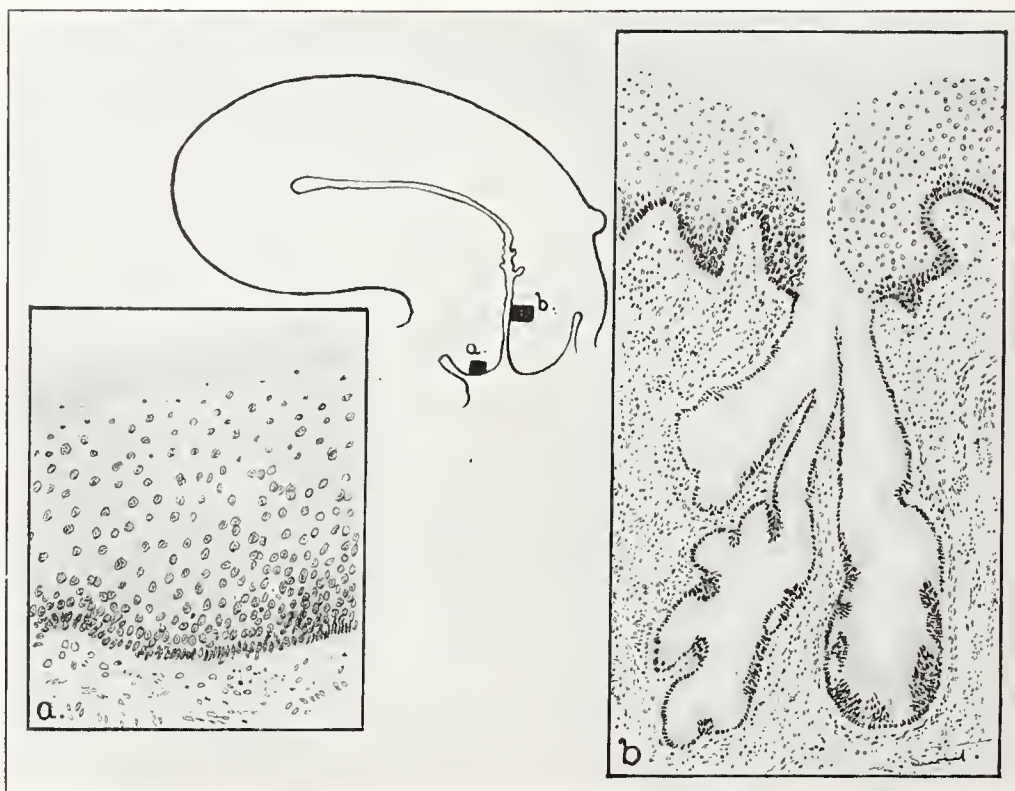
THE USE OF THE ACTUAL CAUTERY

In recent years excellent results have been obtained by the use of actual cautery in the treatment of cervical disease. Hunner, who had noticed the effect of cautery in the treatment of carcinoma of the cervix, was the first to suggest its use in the treatment of leucorrhea. In 1906 he reported his results at Kelley's Clinic in Baltimore. His method was to pass the hot Paquelin blade over the hypertrophied mucosa causing a temporary necrosis. In 1911 Dickinson of New York suggested the use of the electric nasal tip in the place of the heavy Paquelin blade. His method is to scarify the cervical canal longitudinally in strips approximately one-half inch apart and repeat the process every ten days or two weeks until all the diseased tissue has disappeared.

For the past eighteen months I have been using

the electric cautery almost exclusively in the treatment of cervicitis. It is easy to apply and effective. It requires no elaborate apparatus and can be done in the office, usually without anesthesia. My apparatus consists of a small rheostat, a long and a short cautery tip, and a handle to make and break the circuit. The cervix is held by a small hook, and the red-hot tip is applied to the diseased area. I do not hesitate to burn deep enough to destroy all the infected gland tissue. I am also careful not to burn deeper than necessary. I would rather repeat the process than destroy the musculature of the cervix or light up an old parametritis. I start at the internal os and burn lightly increasing the amount of cautery as I approach the more deeply infected area on the lip. I aim to eradicate all of the infected tissue at one sitting. In mild infections I do not give an anesthetic, for the cervix is practically insensible to heat except near the internal os. I find that the pain during cauterization apparently comes from the heat radiating to the musculature which causes the muscle fibers to contract and gives rise to a cramp-like sensation. Near the internal os the cervix is peculiarly sensitive, and many patients will complain of pain as soon as that region is touched. With the cautery tip in the cervix the heat is applied until the patient feels the uterus contract (cramp) and then turned off. In nervous patients 10 per cent cocain applied high in the cervical canal will lessen the acute pain. In apprehensive patients an anesthetic may be required.

Following the cauterization the patient is advised to remain in bed for at least one day. She is told that the vaginal discharge will be greatly increased and that she will be obliged to wear a pad for ten days or two weeks. A few patients "spot" on



a. Section from vaginal surface showing squamous epithelium.
b. Section from endocervix showing glandular structure.

the fourth or fifth day, but the bleeding is never alarming.

At the end of one week the cervical canal has a dark gray necrotic appearance. At the end of two weeks the necrotic material has begun to disappear and healthy granulations can be seen. At the end of six weeks most of the discharge has stopped and a thin smooth lining has covered the burned area. In three months this is replaced with a healthy epithelium and much of the induration in the lips will have disappeared.

Cautery is not entirely free from danger, for there is always the possibility of spreading a virulent infection into the parametrium. For this reason I prefer the surgical removal of the infected mucosa in the suspicious cases. In badly lacerated cervixes I see no need for a plastic operation except in those women who desire children and are likely to abort because of the laceration. If the inflammatory process is removed the danger of cancer is removed. If the patient is not told she has an ugly-looking cervix she will never know the difference. So far I have never had a patient suffer from cervical stenosis which has been suggested as a contraindication to cautery. I have delivered a few patients following extensive cauterization and was not aware of any dystocia.

1000 Deseret Bank Building.

SUMMARY

Cervical disease is an infective process limited to the cervix and characterized by hyperplasia of the endocervix, round-cell infiltration, and fibrosis of the underlying tissue.

It is the inciting cause of leucorrhea and cancer of the cervix and frequently the cause of sterility.

The treatment is the eradication of the infective lesion.

The cautery may be easily applied in the office, and is effective in producing a cure.

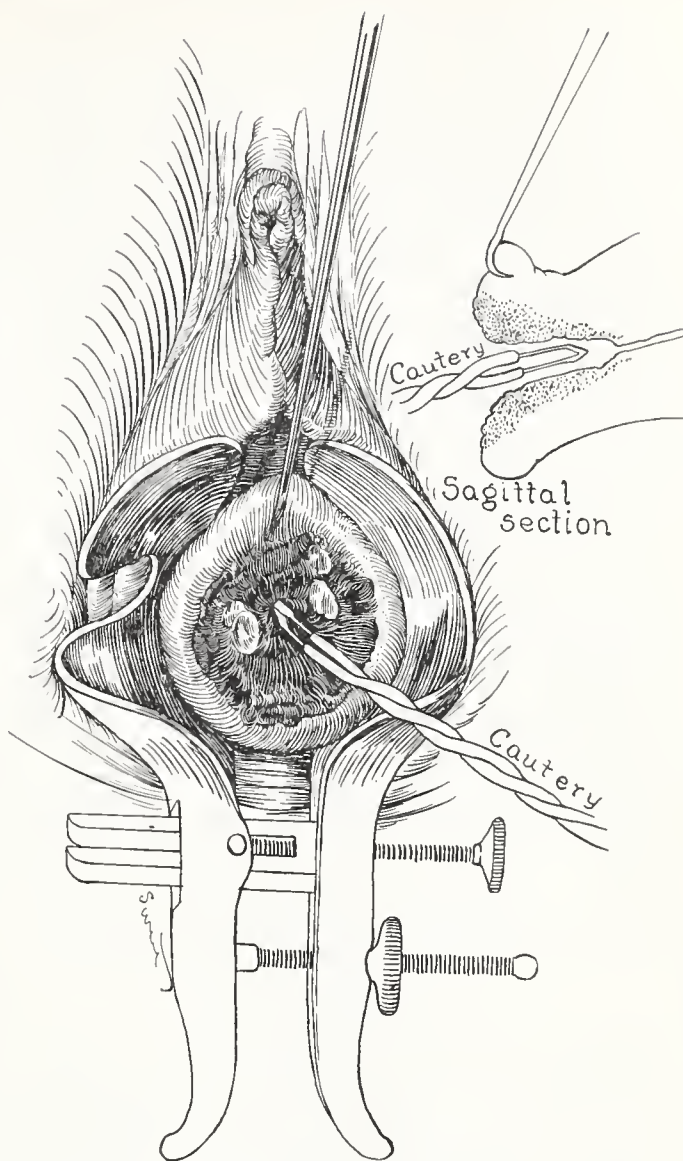
In badly infected cervixes Sturmsdorf's conical removal of the cervical mucosa is preferable.

DISCUSSION

FRED R. FAIRCHILD, M. D. (Woodland)—Doctor Hunter in his very valuable paper suggests in his opening paragraph the reason why the treatment of inflammatory lesions of the cervix uteri is unsatisfactory in so high a percentage of the cases. These lesions are thought of as being limited to the cervix. His contention that the pathological changes penetrate into the musculo-fibrous tissue and even into the parametrium is correct. Any treatment therefore directed toward merely the eradication of the primary focus will result only in failure, unless the treatment also carries with it attention to the changes which have gone beyond this source. The emphasis on this point alone would justify the doctor's paper.

In the hands of the average physician cervicitis or endocervicitis is that and nothing more, and treatment is the same for each patient so afflicted. As a matter of fact an endocervicitis alone may exist in one patient where chronic metritis may have been added to the original lesion in another, and certainly it is not logical in the latter to expect the same results that will obtain from the simple treatment of the primary lesion.

An accurate diagnosis, then, is the first necessity and



Cauterization of the cervix

the most commonly overlooked essential in the intelligent handling of women so afflicted.

Hunter's method of using the electric cautery is logical. In the hands of most of us the application of heat to the cervix either superficially or by puncture, according to the nature of the lesion, has perhaps given better results than we have been able to obtain in any other way. However, in an unfortunately high percentage of cases even this treatment has not been satisfactory. The personal equation probably enters in here. The method of application being tempered by experience would probably give us results more uniformly successful.

I suspect that the doctor by his cautery will secure results more gratifying to him than those of us with lesser experience will be able to obtain.

There are those patients in whom we have not been able to secure satisfactory results by any method less radical than complete hysterectomy. It always has seemed to me that there must be something wrong when so radical a procedure would seem to be necessary for the correction of an ailment so comparatively trivial.



J. U. GIESY, M. D. (Felt Building, Salt Lake City, Utah)—Hunter has very completely and concisely covered the field he has undertaken to review. As to the successful treatment of these patients, any physician practicing gynecology knows the past history of obstinacy attending their care. In regard to the destruction of the infected tissue, and all these cases are infectious, nothing

is better than heat. Heat is the greatest disinfectant of infected tissues known. In the Wisconsin Medical School hospital, destruction of the infected mucosa and submucosa by heat has been practiced for several years with brilliant results. I might mention a somewhat different technique to that of Hunter merely to add a second availability to the practitioners who do not have an apparatus such as he describes, but are perhaps equipped with a good high frequency or so-called "diathermy" apparatus. All they need do is make a hook up for a surgical diathermy—that is, use a large distributing electrode on the abdomen, and a small needle or probe-pointed electrode for the active work, with a foot switch interrupter such as is furnished with all these machines. Set the machine for about a thousand milliamperes ground and you are ready for work. Insert the active tip and step on the switch, cauterizing or coagulating the canal in parallel strips from the region of the internal os to the limits of the outer erosion. Pain is not great. If the patient is nervous, one may insert a strip of gauze soaked in 5 per cent procaine, novocaine, or similar anesthetic for a few moments before the actual work is attempted. Results by this method and after appearance of tissues and healing time are about the same as those under the technique Hunter describes. I am using this method I have just mentioned, and have found it successful. Hunter's point on the incidence of cancer following the congestive and irritative effects of chronic infections of these old cervixes is very timely, and I can only agree with him in his belief that it is the disturbed metabolism resulting, rather than any effects of former direct trauma, which brings about the malignant degeneration in the end. It is a pleasure to discuss so concise and, at the same time, comprehensive a paper.

BACK PAIN OF UROLOGIC ORIGIN*

By ADOLPH A. KUTZMANN, M. D.
Los Angeles

DISCUSSION by Robert F. Day, M. D., Los Angeles; Frank Hinman, M. D., San Francisco; A. Gottlieb, M. D., Los Angeles; L. P. Player, M. D., San Francisco.

BACKACHE, acute or chronic, is a very comprehensive and important symptom which daily demands attention. Modern medicine asks of the physician that he have a good working knowledge concerning it because of the multiplicity of underlying causes. It is the chronic backache which may offer the greatest difficulties in its elucidation. It is a common complaint with which the patient may contend for some time before seeking relief. The physician called upon to treat such patients should be armed with a fair understanding of the many possible causes. It is for that reason that I wish to recall the rôle which the genitourinary tract may play, particularly in the aches and pains of the lower half of the back—the lumbar, sacrolumbar and sacral regions.

Lynch, in 608 gynecologic cases found 48 per cent with sacral and sacrolumbar backache which he attributed chiefly to pelvic congestion; another 17 per cent plus were due to orthopedic conditions.

Back pain, caused primarily by urologic conditions, may well be grouped into four types: localizing, radiating, referred, and metastatic.

Localized or visceral pain is confined to the region of origin. It is in this type that we find the true kidney pain or nephralgia which may be caused

by acute or chronic tension upon the kidney capsule or inflammatory changes in the adjacent tissues. The usual kidney pain is of an intermittent or continual dull character, mild or severe, while at times it may be an ache or approach a dragging sensation. It is located particularly in the flank, usually at the level of the first to the third lumbar vertebrae. What is usually termed a renal pain is in most instances a renal pelvic pain, and if the rare instances of torsion of the pedicle be excluded the colicky renal pain should always be considered with ureteral colic. The colicky type of pain occurs more rarely in the kidney proper, and it should be remembered that such pains are associated chiefly with the hollow viscera. A characteristic radiation does not usually accompany a true nephralgia, since there is no path of transmission as in the case of the ureter. Notable exceptions have been brought forth in recent years in cases of reno-renal reflex where the pain is referred to the opposite kidney. Such referred pains have been explained as coming from the diseased kidney through the celiac plexus or from a compensatory hypertrophy of the normal kidney. All diseases occurring within the kidney usually give rise to the same type of pain or what may be termed a "nephralgia."

Acute paroxysmal pains may occasionally accompany the nonsuppurative inflammatory lesions of the kidney. Renal pains in themselves are generally less marked except in inflammatory lesions where they can become very severe. These are due to a pericapsular inflammation or damming back of the urine into the renal parenchyma with acute congestion and consequent increase in the capsular tension. It is therefore advisable to be cautious in diagnosing a calculus when there is a colicky type of pain in the kidney region in an acute pyelonephritis. In contrast to a lumbago, the nephralgia may not be influenced by stooping, while walking about, severe exercise and pressure may increase it as in the case of a lumbago.

Some of the conditions to be considered as causing a dull nonradiating nephralgia are hydronephrosis and pyonephrosis, pyelonephritis, renal neoplasm, movable kidney with traction on the pedicle, renal calculus; renal tuberculosis, renal infarction; renal congestion; renal sclerosis, perirenal inflammation and occasionally psoas abscess. In some of the given instances the pain may come late in the disease when the pathological process has involved the pelvis and ureter, as in tuberculosis. While psoas abscess is not a renal lesion it will give a backache and may at first simulate a perinephritic abscess. There is also a dull kidney pain, but in addition there are pain in the corresponding hip and retraction of the thigh. True colicky kidney pains may be caused by renal calculus and acute pyelonephritis.

The next back pain to be considered is the radiating type. The pains are caused by the alternate distention and muscular spasm along the ureter and kidney pelvis. The pain is of the same type as that occurring in the biliary system with the kidney pelvis analogous to the gall bladder and the ureter to the common duct. The characteristics which distinguish this type of pain from a true kidney pain or nephralgia are the marked tendency to spasmodic

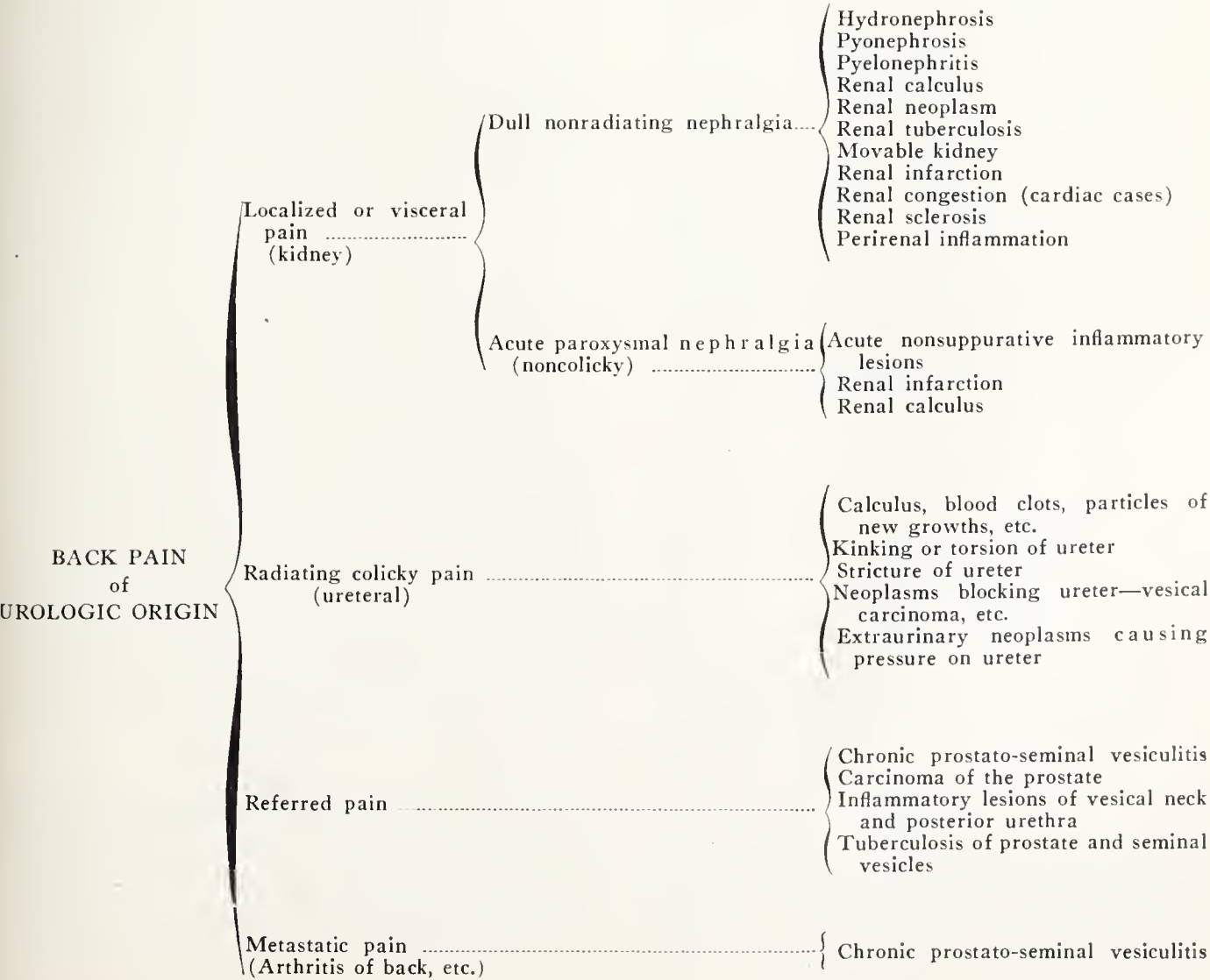
*Read before the Southern California Medical Association at Los Angeles, November 5, 1926.

and colicky attacks and radiation. Dietl's crisis or ureteral colic is well known, beginning up in the lumbar region and radiating downward and anteriorly into the groin and genitalia and even occasionally as far as the knee. The chief cause is that of sudden urinary obstruction with distention of the ureter and kidney pelvis. Such colics on the right may often be confusing with a gall-bladder lesion or acute appendicitis. Especially is this true if there be a tendency for the ureteral pain to radiate upward into the lumbar region. Sometimes these pains occur first in the region of the gall bladder and along the right costal margin. Occasionally they have their site more deeply in the ileocecal region or, if left-sided, just above the left inguinal ligament. In this connection it is well to remember splenitis, sigmoiditis, and diverticulitis.

The important causes of ureteral colic are: (1) calculi, blood clots, crystals and particles of a new growth; (2) kinking or torsion of the ureter; (3) stricture of the ureter; (4) new growths invading and obstructing the ureter, as carcinoma of the bladder and uterine carcinoma; (5) new growths outside the urinary tract and causing pressure on the ureter. A dull pain along the course of the ureter is usually due to a ureteritis, secondary to an existing renal infection above or an ureteral stricture.

It is under the category of referred pain that I

will discuss the urologic causes of low backache in the sacral and sacrolumbar regions. Referred pains ordinarily have no localizing or radiating character from the point of origin or disease, but are felt at a distance in various areas. Exceptions have been noted where there has been radiation down the course of the sciatic nerve. The pain is usually of the dull dragging and aching type, intermittent or continuous. The most frequent underlying cause is an infection of the prostate gland and seminal vesicles. According to Head, these organs are innervated from the tenth, eleventh, twelfth dorsal and fifth lumbar and the first, second, and third sacral segments, hence the referring of the pain to the back. Experience has shown us that injection of the seminal vesicles either by catheterizing the ejaculatory ducts or by vasotomy has reproduced pain in the sacral and sacrolumbar regions in some patients. Young, many years ago, studying 358 cases of chronic prostatitis, called attention to pain in the back simulating so-called lumbago, sacroiliac disease and even renal colic. Caulk and Greditzer, analyzing 300 cases of prostatitis and seminal vesiculitis, found 67 per cent with referred pains or aches in the back, legs and hips, and even down the sciatic nerve. Player reporting 500 cases, noted that in 60 per cent pain in the lower back was an outstanding symptom; in 100 of these taken at random 80 per cent had a prostatitis and seminal vesiculitis. He



further noted that this type of backache was most common in the third and fourth decades.

Aside from a chronic prostatitis and seminal vesiculitis, tuberculosis of these same structures may on rare occasions cause a low backache. Young has noted pain the back (sacral, lumbar and gluteal) and pain referred along the sciatic nerve as an early symptom in carcinoma of the prostate. Occasionally inflammatory lesions of the posterior urethra and vesical neck may also be factors.

The final back pain to be discussed is the metastatic type. There is pain due to a condition such as neuralgia, neuritis, synovitis or arthritis, secondary to urologic disease. They may be the result of metastatic irritation from a focal lesion in the genitourinary tract. The greatest urologic focal infection is a prostatic-vesicular infection. Player noted that orthopedic surgeons found in backache associated with prostatic-vesicular infection on an average of 25 per cent of cases showing x-ray lesions of the pelvic joints. Therefore the significance of this is not to be underestimated when other foci as the tonsils and teeth are being considered.

From this it will be seen that the physician must seriously consider the entire genitourinary tract in studying back pain, especially those uncertain dull backaches which superficially appear without any apparent relationship. There may be times when it is necessary to call in the urologist for a further detailed technical study. Nevertheless there are procedures of which any physician can avail himself to arrive at a tentative decision as to whether the backache may be of urologic, gynecologic, orthopedic, etc., origin. A backache may be simple or, on the other hand, complex. It is upon the evidence of a careful history, general physical examination, including the prostate and seminal vesicles, x-ray examination of the entire urinary tract, careful microscopic examination of the urine and a kidney function test (phenolsulphonephthalein) that he may base his early judgment and determine the need for further study. This information has been designated by Hinman as presumptive or general evidence in contrast to the positive or urologic evidence which must be later gotten to arrive at a definite diagnosis.

1052 West Sixth Street.

SUMMARY

Back pain is a very comprehensive and important symptom, demanding very careful study.

The genitourinary tract plays a big rôle in the etiology of back pain.

Back pain of urologic origin may be grouped into four types: (a) localized or visceral pain; (b) radiating colicky pain; (c) referred pain; (d) metastatic.

The physician should acquire certain preliminary or presumptive evidence before resorting to further expert urologic procedure.

DISCUSSION

ROBERT V. DAY, M.D. (Detwiler Building, Los Angeles)—I had the privilege of opening the discussion on Doctor Kutzmann's paper when he read it before the Southern California Medical Association.

Having studied it carefully and critically I am very much impressed with the common-sense manner and thor-

oughness with which he has handled this subject. I find little to add and nothing to disagree with, and there is only one of his points I wish to elucidate a bit, namely, metastatic pain when of prostatic-vesicular origin.

An infected seminal vesicle is not infrequently the source of bacteria producing arthritis. On the other hand, the prostate is very rarely the focus in metastatic infections, common belief to the contrary notwithstanding. This is for the reason that the prostatic ducts and lobules as a rule drain very well except in very acute prostatitis while, because of the anatomical conformation of the vesicles, drainage is quite apt to be poor. It may be stated that when seminal vesiculitis is present there is practically always an associated prostatitis; the reverse is not always true, and when prostatitis only is present there is almost never a metastatic infection unless it is hyperacute. In practice, however, it is commonly very difficult to separate the prostatic juice from the contents of the seminal vesicles; hence seminal vesiculitis is often very difficult to diagnose. But the prostate is so very frequently blamed without justification simply because the prostatic juice contains numerous pus cells and the real focus has not been found. The point of it all is, that one should be very sure that the urogenital tract is the source of the bacteria before ceasing to search elsewhere for a possible focus.

✽

FRANK HINMAN, M.D. (384 Post Street, San Francisco)—Pain is the commonest clinical symptom calling for relief on the part of the patient, and Doctor Kutzmann has very well emphasized the marked variability in the character of pain due to kidney and ureteral lesions. It is well also to remember that pain is not always present in these lesions. Many cases of both kidney and ureteral stone have never had pain or colic of any kind, and this holds true for all other lesions of the kidney. Another important thing to keep in mind is that there is no absolutely pathognomonic pain of any intra-abdominal disease. Some, of course, are more characteristic, but the typical pain of appendicitis may be simulated by ureteral stone and vice versa, gall-bladder pain may be reproduced by a kidney stone and vice versa. So that the importance clinically of pain is as an indication of the need of more study and more definite findings. The chief characteristics of kidney and ureteral pain have been very well summarized. It is often a help to keep in mind that renal pain is dual in character, due to the fact that the capsule of the kidney and the pelvis have separate innervations. The renal capsule and perirenal tissue possess sensory nerve terminals of cerebrospinal origin. The pelvis and ureter have sympathetic fibers only. The renal parenchyma is insensitive and may be cut, irritated or stimulated in any way with no sensory response so long as the pelvis or ureteral or capsular tissues are not implicated. Tension by pulling or stretching the pelvis and ureter apparently is the chief cause of pain. But in the pelvis or ureter other stimuli than stretching may give rise to pain, although most any uretero-pelvic cause may have a secondary effect on the capsule. The intensity of the pain seems definitely proportional to the acuteness of pressure or tension, and this is the probable explanation of the many instances of marked renal pathology without pain, the stretching or irritation having come on so gradually as to have caused no nerve stimulation. One helpful clinical fact in regard to ureteral pain is the fact that when referred to the testicle from upper ureteral cause, which is so frequent in this type of pain, the tunics of the testicle alone are sensitive, whereas in referred pains in the testicle from lower ureteral lesions the skin of the scrotum may also be sensitive. In lower ureteral lesions also the spinal segments supplying the bladder, penis, and scrotum are often also implicated in referred pain.

✽

A. GOTTLIEB, M.D. (607 South Hill Street, Los Angeles)—The urological viewpoint of backache has been splendidly elucidated in the paper of Doctor Kutzmann. Of interest to the orthopedist is the fourth or metastatic type of backache which is not sufficiently emphasized by the author and the discussants.

Gonorrheal and other infections in the pelvic joints, viz., the lumbosacral, low-vertebral and sacroiliac, and in the connective tissues surrounding these joints are not

uncommon causes for backpain. The bacteria and toxins in the prostate and seminal vesicles may free themselves from their places of hiding, enter the blood stream and lodge in the terminal arteries of the joints or in the capillaries of the muscles, fasciae and joint capsules. These connective tissues become the seat of inflammatory hyperplasia with exudation and proliferation of the fibrous tissue elements. If the foci of infection are discovered and eradicated early the local inflammation about these joints undergoes resolution even without the aid of therapy to the back; if, however, the urological focus is neglected and becomes chronic the inflammatory exudate organizes, leads to the formation of adhesions and, later, to contracture of the connective tissue. Stiffness and pain on motion of the lower back is the result of this pathological process. Besides "fibrositis" (as this process may best be termed) of the soft tissue of the small of the back, a contributory cause of backache is the faulty posture which patients with inflamed pelvic organs assume in standing and walking. Muscle strain is the consequence and backache, the complaint. On the other hand, flat feet and faulty posture may have preceded the urological ailments; the backache of the former causes becomes aggravated through the addition of the latter ones.

L. P. PLAYER, M.D. (384 Post Street, San Francisco)—Kutzmann has made a very clear and concise statement of the case, and his classification of the causes of backache should be of some assistance to the general practitioner in his diagnostic efforts.

Back pain due to causes mentioned under the first and second classifications present problems in differential diagnosis that require exhaustive study; however, in proportion to the total number of cases these form a small percentage.

It has been my experience that the largest number of cases fall into the metastatic group with other focal infections.

DOCTOR KUTZMANN (closing)—It was not the purpose and scope of this paper to emphasize any particular cause of backache, but rather the many that may enter from the urological point of view. I have tried merely to bring out the possibilities that can be concerned as etiological factors, so that such general diagnoses as "lumbago," etc., will not be made. The emphasizing and enhancing of the various factors by the discussants is therefore appreciated. The urogenital tract in many cases is a factor in the causation of backache and should not be lightly dismissed because the symptoms or signs do not point directly to it. The performance of a careful urinalysis, rectal examination or x-ray examination of the urinary tract will often give to the alert physician some clue that can be followed to a positive diagnosis. I wish to thank Doctors Day, Hinman, Gottlieb, and Player, for their excellent discussions.

III Chosen Advocates—The effrontery of the opponents of vaccination and vivisection has been displayed with a customary disregard of principle and sensibility in the activities of the Caruso Defense Committee. Under the leadership of Alexander Marky, a son-in-law of MacFadden and adherent of many of his views, a group of "antis" have been exploiting the emotional aspects of the Pendola murder for the dissemination of anti-vaccination propaganda.

Those who are genuinely concerned over the impending fate of Caruso will regret the entry of the anti-vaccinationists into his defense. They are the one group that have no right to plead for leniency in a case of this kind. The lurid misrepresentations that they habitually spread are designed to arouse the passions and prejudices of just such ignorant and confused mentalities as Caruso's. When a tragedy like the Pendola death occurs, the best that they can do is withdraw from the public eye and maintain a discreet silence.

The murder of the young physician, who had done all within his power to save the moribund child, was an appalling crime. If mercy is sought for the slayer, it cannot be asked on anti-medical arguments, but because of the inordinate ignorance of the killer. The Pendola murder is not fit grist for the anti-vaccination mills.—*New York Medical Week.*

A CLINICAL INTERPRETATION OF PULSE PRESSURE*

By J. MARION READ, M.D.
San Francisco

ABOUT twenty years ago the sphygmomanometer was added to the physician's armamentarium, thus enabling him to measure the blood pressure with considerable accuracy. But with this instrument of precision, as with other mechanical aids to diagnosis, the perfection of technical methods to measure deviations from the norm has outstripped our ability to interpret correctly the meaning of these deviations. This has seemed to be particularly true regarding the deviations of blood pressure from the accepted standards.

The clinical observations reported here are submitted as further evidence supporting the conception that a relationship exists between pulse pressure and ventricular systolic output.

Numerous investigators have shown that in hyperthyroidism the tachycardia varies in degree directly with the metabolic rate. It seems reasonable to suppose that this increased heart rate is an adaptation for increasing the volume of blood pumped out by the heart per minute, since the minute volume of the heart is known to be increased in this condition. But the pulse pressure also varies directly with the metabolism, as I have previously shown. An analysis of one thousand observations of the pulse rate, blood pressure and metabolic rate, made simultaneously under basal conditions, showed that the rise in pulse pressure with increasing basal metabolic rate is due to rise in systolic pressure, since the diastolic pressure remains practically constant. The pulse rate and pulse pressure both increase in a parallel manner with elevation of the basal metabolic rate.

When gathering these data it was observed that some subjects showed a disproportionate increase in either pulse rate or pulse pressure, with little or no change in the other. This suggested that some individuals might increase the minute volume by increasing the rate of systole per minute, while others accomplished the same increase in total blood flow by increasing the volume ejected into the aorta at each systole. Pulse pressure might then be a rough measure of stroke volume.

Recently there came under observation two individuals with complete heart block, as shown by electrocardiogram, neither of whom suffered limitation of activity imposed by circulatory insufficiency. One was a woman, 47 years old, whose slow pulse had excited interest since girlhood. P. R. 36-44, blood pressure, systolic 180, diastolic 80. The other was a man, 70 years old. P. R. 28-30. Systolic pressure 200-240; diastolic 70-100. Neither had aortic insufficiency.

The normal diastolic pressures in these subjects and the lack of any circulatory embarrassment, with moderate cardiac enlargement suggested that the blood pressure changes were adapted to permit an

* Abstract, chairman's address, General Medicine Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927. Address in full published in *The American Heart Journal*, June, 1927.

adequate minute volume even with a pulse rate reduced to about half the normal.

In summary I will say that the minute volume of the heart being the product of heart rate and stroke volume, may be varied by altering either one or both of these factors; augmented blood flow results from an increase in one or both; and diminished flow follows a decrease in one or both. Proportionate changes in both, but in opposite directions, tend to maintain a constant minute volume. I have shown that in certain conditions alterations in pulse pressure occur which are in the same direction as one would expect stroke volume to vary in these conditions. While pulse pressure is not a measure of systolic output, its direction and magnitude of variation seem to parallel the changes in output.

870 Market Street.

THE INDICATIONS FOR SURGERY IN THE TREATMENT OF HAY FEVER AND ASTHMA*

By SAMUEL H. HURWITZ, M. D.
San Francisco

DISCUSSION by Wallace Bruce Smith, M. D., San Francisco; Irwin C. Schumacher, M.D., San Francisco; Harold A. Fletcher, M.D., San Francisco.

IF one judge from current literature as well as from discussions with colleagues familiar with this subject there is still considerable difference of opinion as to the value of surgical procedures in the treatment of hay fever and asthma. That the rhinologist and otolaryngologist should have played so important a part in the treatment of these patients is not surprising in view of the peculiar localization of their symptoms. Patients having prolonged attacks of sneezing, accompanied by an almost constant and profuse watery or mucoid discharge with nasal obstruction or headache, naturally seek relief from these symptoms by local treatment, and because of the widely disseminated view of asthma as a nasal reflex the surgical specialist also has been called upon to treat many of these sufferers.

That the many operative procedures employed, which include removal of polypi, amputation, excision and crushing of turbinates, straightening of septums, and more or less radical operations on the nasal sinuses have not always given results satisfactory enough to justify them is clear from the reports not only of internists and allergists, but also of nose and throat specialists themselves.^{1 2 3 4 5} An unbiased and critical answer to the question as to when surgery is indicated in the treatment of the patient with hay fever and asthma is not to be found by making, on the one hand, a statistical survey of the good results obtained by surgical therapy in these patients, nor, on the other hand, by citing the many instances of relief from symptoms by constitutional or other modes of treatment. This problem should be studied from a broader viewpoint. A proper evaluation of each form of treatment, either

alone or in combination, can be had only by a consideration of the constitutional factors and the nasal lesions underlying the symptoms for which the patient seeks relief.

CONSIDERATION OF INDICATIONS FOR SURGICAL TREATMENT

For purposes of clearness and brevity the subject of the indications for surgical treatment will be discussed under the following headings: 1. The Rhinologic Aspects of Allergy. 2. The Rôle of Nasal Anomalies and Infection of the Upper and Lower Respiratory Tract in Relation to Surgical Treatment. 3. Nasal Reflex Asthma and Surgery. 4. Summary and Conclusions.

I.

THE RHINOLOGIC ASPECTS OF ALLERGY

The last decade has witnessed a remarkable clarification of our knowledge of the causes underlying a certain group of diseases which we now designate as allergic. Although we are still in the dark as to the importance of the sympathetic nervous system, the endocrine glands, and certain physical and chemical agents in relation to allergy in man, we do know that most of the instances of hay fever, seasonal and perennial, and that more than half of all the asthmatic conditions result from an inherited hypersensitiveness to protein substances.

Allergy has been defined as a natural and not infrequently inherited state of human hypersensitiveness to proteins. Whether the protein is inhaled, thus coming into direct contact with the mucous membrane as in the case of pollen proteins and the proteins of cereal grains, animal hairs and dusts, or what is not so frequently realized, ingested in the form of food proteins, the reaction of the mucous membranes is the same. The latter is also true whether the reaction manifests itself in the upper or lower respiratory tract. Thus, in hay fever the sensitization exists primarily in the mucous membranes of the eyes and nose, whereas in asthma the membranes lining the bronchial tubes are the seat of this hypersensitiveness. It is rare, however, for a patient to show sensitization in only one of these localities. More commonly there is evidence of involvement simultaneously or consecutively of the cells of several membranes. Indeed, more than half of the hay fever patients develop bronchial asthma, due to irritation and congestion of the bronchial mucosa, analogous to that observed in the nose and throat.

The pathological changes in the respiratory mucous membrane, and more particularly the microscopic appearance of the nasal mucosa of an allergic individual exposed to a protein to which he is sensitive has been well described by many rhinologists. According to most observers, patients with seasonal or perennial hay fever may show either a simple turgescence of the nasal cavernous tissue with an increased secretion of mucus or serum, a picture not infrequently seen in non-allergic rhinitis, or in the more aggravated case, a marked pallor. This pallor is usually but not invariably accompanied by edema. Inspection of the nose shows great obstruction, often complete, resulting from the edematous, pale, mu-

*From the Department of Medicine, Stanford University Medical School, San Francisco.

Read before the San Francisco County Medical Society Section on Otolaryngology, February, 1927.

cous membrane, and in the old chronic cases, poly-poid degeneration of the mucosa is found in a large percentage of instances. In a large number of patients, placed by some observers as high as 25 per cent, there is present also sinus disease, either hyperplastic or suppurative. Whether these sinus conditions are merely coincidental, or directly secondary to nasal allergic manifestations, is still a moot question which will be referred to later.

The diagnostic significance of such lesions in their relation to seasonal hay fever is not difficult of interpretation, if with these findings there is a history of attacks of seasonal character, attended by coryza, lacrymation, itching of the eyes and nose, and sneezing. When, however, the same condition occurs as a perennial disease, the diagnosis is frequently overlooked and many surgical procedures are undertaken in an effort to give the patient relief.

When uncomplicated by nasal anomalies and infections which may require surgical therapy to remove obstructions and restore normal drainage, seasonal and perennial hay fever are non-surgical diseases of the nose and throat. Their diagnosis and treatment properly belongs to the internist, equipped with the knowledge, technical skill and materials to study allergic diseases with precision.

There is no disease group in which a detailed history is more essential, and there are few histories more difficult for the uninitiated to obtain. It is necessary to go into every ramification of the patient's life, activities and surroundings. The family history must be searched for the presence of manifestations of hypersensitiveness in antecedents, for nearly 50 per cent of these patients give a positive history of allergy in some form or other. Interesting in this connection is the observation that this allergic tendency may be transmitted according to the Mendelian Law of Inheritance. Allergic diseases may therefore now be regarded as truly inheritable diseases.

The circumstances of the attacks should be carefully investigated with proper emphasis on the onset, duration, termination, seasonal character and relation of exposure to pollens, animal hairs, dusts, food, and infection.

Skin tests are indispensable in the study of a patient with hay fever and asthma, and from a diagnostic viewpoint it is fortunate that the cells lining the cutaneous surfaces of the body, as well as those of the mucous membranes, show this peculiar hypersensitiveness to protein substances. The physician who expects to investigate many patients with hay fever and asthma must have in his possession suitable preparations of practically all substances that are known to cause these conditions. He must be willing to spend the time and have the patience to test and retest his cases, because frequently many and repeated tests are required before the cause or causes underlying a given instance of hay fever or asthma is successfully determined. It is for these reasons that the exact etiologic diagnosis and treatment of the allergic diseases is fast becoming a specialty in medicine. The medical treatment of these patients is now so well known that it is rare to find patients deprived of this newer therapy.

The indications for surgery in this group of aller-

gic patients have been well summarized by Coates: "In no case where protein sensitization can be demonstrated should dependence be placed on nasal surgery. Where this is done, good results will rarely be obtained, and for this reason surgery for such cases falls into disrepute. Allergic treatment should first be instituted and carried out.

II.

THE RÔLE OF NASAL ANOMALIES AND INFECTION OF THE UPPER AND LOWER RESPIRATORY TRACT IN RELATION TO SURGICAL TREATMENT

That infection of the upper and lower respiratory passages ranks as the second great factor in the development of allergic rhinitis and asthma is gaining recognition. Rhinologists have repeatedly called attention to the existence of infection of the ethmoid and maxillary sinuses in seasonal and perennial hay fever and in patients with asthma who do not show skin reactions to protein tests. It is now well known that such infection may be slight and not easily demonstrated and that transillumination and roentgen examination are frequently misleading, whereas drainage of the infected cavities very often gives marked relief or a complete disappearance of symptoms.

Considerable controversy has arisen between allergists and rhinologists in regard to the rôle played by nasal anomalies and infections in the production of the allergic manifestations. Todd,⁷ Selfridge,¹ Kahn,³ and Piness and Miller^{4,5} champion the view that infection is coincidental or directly secondary to the nasal allergic state, whereas Coates⁶ and others are equally strong in their conviction that infection, in many instances, is the primary cause of obstruction to sinus drainage and that the allergic state, if it can be shown to exist, may be more readily established in the presence of congested and irritated mucous membranes, so common in patients with paranasal sinus infections. This, of course, is more likely to be so where the mucous membranes become sensitized to inhalants such as those derived from pollens, animal hairs, feathers, and dusts.

Equally controversial, is the part played by infection as a primary cause of asthma. That asthmatic patients can become sensitive to the bacteria with which they are infected appears doubtful because by far the largest number of observers have failed to get any positive skin reactions with bacterial extracts. However, although few acknowledge the existence of actual sensitization to bacterial proteins, nearly all agree that secondary infection of a congested and edematous bronchial mucous membrane may serve to bring on and to perpetuate asthmatic paroxysms, the original cause or causes of which may have escaped detection. This viewpoint has so direct a bearing upon our conception of what constitutes appropriate surgical treatment in this type of asthma that it merits a little further emphasis.

In previous papers^{8,9} on bacterial asthma a number of clinical features which characterize this group of asthmatics were stressed. It was pointed out that the carefully taken histories of many children and adults show over and over again the following facts: first, the attack of asthma started after some res-

piratory infection, such as whooping cough, influenza, bronchopneumonia, grippe, a neglected bronchitis or tonsillitis; second, every subsequent attack or series of attacks, was introduced by a new cold or bronchitis, coming on, as a rule, at a time of year when naso-bronchial infections are prevalent; third, a large number of asthmatics are the subjects of chronic bronchitis from which they suffer more or less even in the interval between attacks. This bronchitis, whether it can be shown to have antedated the first asthmatic paroxysm or whether it is a concomitant affair of subordinate nature, developing secondarily to the asthma, should be looked upon as the inciting cause of the recurrent paroxysms.

The part played by infection in the etiology of hay fever and asthma has been stressed at some length because an appreciation of its importance makes the logical rôle of the surgical specialist in this group of patients clearer.

Regardless of whether a nasal anomaly or a focus in the nose or throat, or a sinus infection is directly secondary to the nasal allergic manifestations or is coincidental, if drainage is interfered with, it would seem to be a common sense procedure to correct it. The results of many rhinologists⁶ support the conclusion that some of the perennial hay fever patients and certain of the asthmatics are given considerable relief by appropriate surgical measures. It is, of course, true that in many instances an allergic state is coexistent with nasal or other local factors, and that surgical therapy cannot entirely remove the root of the evil. In these patients the allergic background must also be searched out and, if present, treated before a complete result can be achieved. It is at times difficult, when allergy and nasal anomalies and infections are both present, to decide which form of treatment to employ first. The best results in this group of patients can be attained only by the closest cooperation between the allergist, internist, and rhinologist, not only in diagnosis, but also in proper treatment. Only few generalizations are possible in the rational management of those hay fever and asthma patients who require a combination therapy. If the history and examination clearly indicate that the faulty mechanical condition of the nose is the result of obstruction from a turgescent, allergic mucous membrane, surgical treatment should be deferred until an attempt has been made to relieve the patient's symptoms by desensitization with the protein offender. Should, however, proper ventilation and drainage of the nose still remain defective, an attempt at corrective surgical treatment is justifiable. Indeed, the necessity of improving without delay the patient's general health, vitality and resistance to infection frequently demands the simultaneous employment of surgical and constitutional treatment. This is particularly true of the chronic asthmatic with an allergic background who after he has been relieved of his asthma may still continue to have symptoms because a chronic bronchitis remains. In such instances it would be folly to leave an infective focus in the nose or throat to drain bacteria-laden secretions into the larynx and trachea. The eradication of such a focus of infection may be combined advantageously with the administration of an autogenous vaccine

made from the same strain of bacteria causing the infection. Frequently by these means a good therapeutic result may be obtained when surgery alone, or desensitization alone, or vaccination alone may fail.

Where chronic infection of the bronchi is found responsible for the patient's asthmatic condition and no obvious anomalies or infections exist, surgical interference can do no good. These patients are likely to be already depleted of physical and nervous vitality and should be spared the added load of a neurosis which may follow upon the blasted hopes attending a surgical failure.

The bronchospasm in this type of asthmatic results from the patient's effort to raise the thick and tenacious sputum secreted by a congested and edematous mucous membrane, so often the aftermath of a respiratory infection such as whooping cough, bronchopneumonia, or influenza. A medical regimen is most useful in these cases. This should include general hygienic measures directed toward an improvement of the patient's resistance to infection, and the employment of properly prepared and carefully administered autogenous sputum vaccines, the value of which in this group of bacterial asthmas has been emphasized in previous papers^{8,9}.

III.

NASAL REFLEX ASTHMA AND SURGERY

Any extensive discussion of asthma as a nasal reflex must involve a consideration of certain anatomic and physiologic problems of sympathetic innervation, which are beyond the scope of this paper. The view that certain forms of asthma are due to reflex action from nasal lesions has been largely sponsored by rhinologists^{10,11}. There is no accurate way of obtaining reliable data on the real importance of this reflex factor in the etiology of asthma.

On theoretical grounds, the conception of reflex asthma is supported by the immense area of peripheral exposure offered by the membranes of the respiratory passages. This favors a degree of irritation and absorption present in no other part of the body. These membranes are supplied with a nerve mechanism of such complexity that the various impressions can be carried to all parts of the body. The nerve fibers that emerge from the sphenomaxillary fossa and that are distributed to the nasal and accessory nasal membranes contain sensory, secretomotor, vasodilator and vasoconstrictor fibers. Furthermore there is physiological proof that a local disturbance of the nose may, through these innervations, cause respiratory, cutaneous, circulatory, and visceral symptoms.

Again, from a theoretical viewpoint it would appear reasonable to believe that the correction of local sensitive spots and the removal of tissue that may be responsible for reflex symptoms by pressure may give more complete relief than desensitization and vaccination alone.

That certain types of reflex asthma can be benefited, for short periods at least, by sphenopalatine ganglion injections with Sluder's alcohol phenol combination,¹⁰ or by blocking the various branches of the fifth nerve supplying the nasal mucosa¹¹ is

too well known to the surgical specialist to merit more than passing mention.

IV.

SUMMARY AND CONCLUSIONS

A decision as to the proper place of surgery in the treatment of hay fever and asthma should be based upon a consideration of the constitutional factors and nasal lesions underlying the symptoms of the individual patient.

Seasonal and perennial hay fever, uncomplicated by nasal lesions, are non-surgical diseases. A careful search will usually be rewarded by finding the protein offenders responsible for the symptoms.

Where protein sensitization can be demonstrated, no dependence should be placed on nasal surgery unless desensitization fails to relieve the symptoms.

Infections of the upper and lower respiratory tract are important factors in the development of hay fever and asthma. Infection is the only demonstrable cause of symptoms in a large number of asthmatic patients nonsensitive to proteins on repeated tests.

Where an infective focus in the nose, throat, or sinuses exists, appropriate surgical measures are justified to secure proper ventilation and drainage, regardless of whether the infection is coincidental or secondary to nasal allergy.

Frequently the allergic state is coexistent with nasal infection. Better results in these patients can be attained by desensitization combined with surgical treatment. In the diagnosis and treatment of this group the best interests of the patient will be served by the closest cooperation between the allergist, internist, and rhinologist.

In bacterial asthma surgical treatment is indicated only when an infective focus in the nose and throat drains bacteria-laden secretions into the larynx or trachea. Corrective surgical measures in such instances will help to improve the general health and vitality of the patient and make more valuable the results of general hygiene and vaccination.

Surgery has no place in the treatment of the patient with asthmatic bronchitis in whom no nasal anomalies or infections are demonstrable. Where it is carried out good results will rarely be obtained, and failure will only cause surgery to fall into disrepute.

The importance of the nasal reflex factor in asthma is as yet not well established. That it does play some part in causing symptoms is shown by the good results which at times follow the inhibition of this reflex by surgical means.

490 Post Street.

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DISCUSSION

WALLACE BRUCE SMITH, M.D. (490 Post Street, San Francisco)—It is perhaps for the relief of the symptom of blocking of the nasal passages and consequent inability to breathe through the nose that most of the unnecessary surgery in this condition is undertaken. When this blocking is caused by swollen turgescient mucous membrane unaccompanied with anatomical anomalies or new formations (polyps, etc.), surgical interference is not indicated. The nasal mucous membrane is the most constantly used mucous membrane of the body, and should be scrupulously preserved. If any part of it is destroyed it is replaced by non-functioning scar tissue.

If the allergic condition is associated with deviations of the septum, polyps, or chronic accessory sinus disease, these conditions are to be relieved by the proper surgical procedures. But the surgical indication ceases at that point and the measures for relief along desensitization lines begin. The blocking of a nose by allergic mucous membrane swelling corrects itself when the patient is desensitized against the offending protein. The removal of the turbinate bones for this condition, still too frequently undertaken, cannot be condemned too severely.

For the allergist, on the other hand, to undertake remedial measures without first assuring himself of fundamentally correct upper air passages free from chronic infections is to care as little for the well-being of his patient as the rhinologist who removes turbinate bones.

The handling of allergy is to be undertaken by both allergist and rhinologist irrespective of whether that duality reposes in one person or not.

✱

IRWIN C. SCHUMACHER, M.D. (University of California Hospital, San Francisco)—It is most important that an etiologic diagnosis be arrived at before appropriate therapy can be instituted. I agree with Doctor Hurwitz that in the field of hay fever and asthma this is best ascertained through the combined efforts of the allergist, internist and surgical specialist, in this case the otorhinolaryngologist.

Because so many of these patients first consult the nose and throat specialist, it is imperative that he be interested in the possible underlying allergic state to insure the proper course of therapy.

Recognition of possible allergic states is more readily afforded by taking a careful history along the following lines: a possible family history of allergic manifestations; a personal history including the age of onset and duration of the condition, whether it is perennial or seasonal; the place of onset and its relation to the recurrence of attacks, effect of change of environment, locality or occupation and, finally, inquiry as to allied allergic manifestations. With these data it is then frequently possible

for the surgeon to determine whether the patient should be given the protein skin tests.

The seasonal type, either of asthma or hay fever, offers no difficulty in this respect. But it is the perennial type of hay fever and the "sub-hay-fever" groups of Piness and Miller, which have so often been subjected to unnecessary topical and surgical treatment and many times with no relief to the patient.

It seems a common sense procedure to remove polypi and perform other corrective operations or institute topical treatment which will restore or promote proper drainage even in those cases in which there is a chronic turgescence of the mucous membrane, regardless of which is the primary etiologic factor. But it has been repeatedly shown that these measures alone are generally insufficient, because they must be combined with the therapy instituted by the allergist to correct or relieve the underlying allergic condition to afford the patient the maximum amount of relief.

When the nasal pathology does not in itself seem sufficient to explain the patient's condition, consultation by the surgeon with the allergist is obviously indicated.

The eradication of infective foci in the nose, throat or sinuses with appropriate surgical procedures to promote drainage and secure proper ventilation is indicated whenever these exist, regardless of whether the individual has or has not hay fever or asthma—if only in the hope of improving his general condition.

These procedures are especially indicated in that group of asthmatic bronchitis or bacterial asthma cases where the bacteria-laden secretions are draining into the nasopharynx or throat.

Except for the possible beneficial effect on the patient's general condition, such procedures would seem to be valueless in the treatment of cases of allergic bronchial asthma.

Finally, we must not lose sight of the fact that measures directed toward improving the general condition of the patient are very important.



HAROLD A. FLETCHER, M. D. (490 Post Street, San Francisco)—In listening to Doctor Hurwitz read his paper before the San Francisco County Medical Society, and later having the pleasure of reading his paper over and taking more time for the details of the subject contained therein, I have been struck with the fairness and broad-mindedness with which he has taken up this subject.

All too many rhinologists fail to look upon the general nature of hay fever and asthma and place too much weight on the local conditions in the nose. It also may be said that a great many physicians, as well as those general physicians interested particularly in allergy, do not credit the local conditions in the nose with the importance they deserve.

There is a middle ground which in the future will become more and more important, which will mean that each individual case will be worked up in a cooperative manner between the rhinologist and the allergist or general physician treating allergic conditions. Without this cooperation, neither one department or the other will become any more successful than has heretofore been the case.

Looking at the subject as a whole, there are always those simple cases which respond to the simple removal of irritating factors locally in the nose. There are also those very difficult cases which, in spite of the most careful reconstructive work in the nose, together with the most careful corrective measures, from the standpoint of general medicine and attempted removal of allergic conditions, so far, have not been benefited.

It is in these latter, more complicated cases that the most careful, conservative work on the part of the rhinologist is necessary. To be able to distinguish between infection in the nasal sinuses due to an allergic condition and infection which is primary and thereby a probable cause of an allergic condition taxes the clinical ability of the rhinologist to the utmost, and decisions must be based on careful observation and careful reasoning.

My own feeling is that the field of hay fever and asthma is a general one and should be in the hands of

general physicians capable of handling the subject of allergy from all standpoints, and that the rôle of the rhinologist should be secondary, ready to aid in the diagnosis and treatment, whether surgical or medical, of any local causative factors.

ADVANTAGES OF ETHYLENE-OXYGEN AS A GENERAL ANESTHETIC*

By GEORGE A. JOHNSTONE, M. D.

Glendale

THE gas ethylene (C_2H_4) was introduced by Luckhardt and Carter¹ of Chicago and was first used in the Presbyterian Hospital of that city. It is one of the hydrocarbons prepared by passing ethyl alcohol over anhydrous sulphuric or phosphoric acid, thus extracting a molecule of water. It may be considered as an anesthetic occupying an intermediate place between nitrous oxide and ether. It has certain definite and distinctive advantages. It mixes with ether satisfactorily, and by using the ordinary gas inhaler a mixture containing from 1 to 25 per cent of ether vapor may be substituted at any time.

ETHYLENE IN MAJOR AND MINOR SURGERY

Ethylene is successfully used as a general anesthetic in major as well as in minor surgery—tonsillectomies, appendectomies, caesarean sections, hysterectomy, gastroenterostomy, cholecystectomy and other operations; and where the age of the patient has ranged from three days to eighty-four years.

HOW ETHYLENE ACTS

Complete anesthesia may be induced within three to eight minutes. Very seldom is any excitement or sense of suffocation experienced. The relaxation produced is sufficient for all ordinary operations outside the abdomen; but in order to obtain the proper relaxation for intraabdominal operations, especially the upper abdomen, it is often necessary to use in conjunction some ether at the beginning of the operation, also while there is much handling of viscera. In our experience, one ounce of ether is usually quite sufficient for operations lasting from one to two hours; and this does not retard, to any noticeable degree, the return to consciousness of the patient. With alcoholics much more ether is required.

Vomiting usually occurs while the patient is still on the operating table, after the reflexes have returned, aspiration of the vomitus being thus avoided. The patient experiences but little nausea afterward, this depending to a great extent upon the amount of ether used, and upon the anoxemia while anesthetized. We have had acute appendicitis, gall bladder and gastroenterostomy cases where there has been no vomiting during or following the operations.

Luckhardt and Lewis² of Chicago made a careful survey of 119 patients who were given ethylene oxygen, and noted that gas pains were present in 4.2 per cent, whereas 36.6 per cent of those who were operated upon with ether anesthesia suffered from

* Read before the Anesthesiology Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927.

this particular postoperative discomfort. In our experience, the percentage is not as low as this, but we do observe a marked difference in the frequency and degree and duration of the gas pains following the ethylene as compared with ether anesthesia.

Relaxation can be obtained without cyanosis much more readily than when nitrous oxide and oxygen are used. Luckhardt states that the color of the patient is more nearly normal than with any other inhalation anesthetic now in use. Our observation confirms this.

Ethylene is considered less toxic on the nervous system (body cells) in that there are very few headaches from the anesthetic, whereas following nitrous oxide anesthesia the patient frequently complains of throbbing headaches.

After one or two hours of complete anesthesia the patient's garments are dry and rarely need to be changed. Patients are not dehydrated (desiccated) during the operation; and we believe this to be one of the strongest considerations in favor of ethylene. A dry skin (dry clothes) prevent chilling and perhaps is a factor in preventing postoperative lung complications.

NARROW ANESTHETIC MARGIN

The patient passes rapidly from the anesthesia to the waking stage. We cite the following instance where the patient was a poor surgical risk to begin with, where considerable blood was lost on the table, and where the operation performed was one usually attended with considerable shock. The patient awakened immediately, and we were able to administer such stimulants as were necessary for shock, but with the patient conscious. If ether had been used, it would have been necessary to give an unconscious patient stimulants, possibly overstimulating him, because we could not so readily observe the effects. Having the patient awake so soon after the operation is considered by some a disadvantage, but in the case just cited we were glad to have the patient awake immediately, instead of being asleep from one to three hours.

Ethylene is now used in many clinics on all patients with pulmonary tuberculosis, asthma and kindred diseases, who must undergo operation but where it is highly desirable to avoid further lung irritation. There is no increase in the flow of saliva or mucus along the respiratory tract even though the patient has not been given atropine preoperatively.

Donald C. Balfour of the Mayo Clinic, some time ago, during a period of eighteen months, performed more than four hundred stomach operations, using ethylene; and gives this fact as the reason for so few deaths.

RISE IN BLOOD PRESSURE DURING ANESTHESIA

Heaney and Luckhardt^{1 2} of Chicago, Allgeyer³ of New Orleans, and Aurelius of Minneapolis, declare there is very little change in blood pressure. Lundy⁵ of Washington reports four cases of infants where there was increased systolic of 25 mm. mercury; while our series of one hundred cases, where blood pressure was taken at the beginning of the operation and thereafter every five minutes during operation, shows an average increase in systolic pres-

sure of 26 mm. systolic and 14 mm. diastolic. With some patients there was a greater increase than with others, but 26 mm. was the average. The duration of operation on these patients varied from twenty minutes to two and one-half hours. Usually there is a rapid rise within the first ten to twenty minutes, after which time the pressure gradually recedes to normal. In a few instances the pressure was normal for the first half hour; and after that there was a marked increase, the pressure receding to nearly normal later during the operation. In comparing the pressures at the completion of the operation the average case shows no change, while in a few cases it was slightly lower; in others higher.

The question arises, is this an advantage; or is it a disadvantage? Can ethylene be used with safety in hypertension cases? One of our gall bladder patients, a poor surgical risk on account of a cardio-renal complication, with a pressure of 222 systolic and 120 diastolic, presented an interesting variation from the average, in that she began at 222 mm. systolic pressure, rising to 228 after a few minutes, then gradually receding to 120 systolic, 80 diastolic, and remained so until the end of the operation. Other hypertension patients presented practically the same picture.

At first we were somewhat reluctant to administer ethylene to hypertension cases; but an observation made by one investigator, that if digitalis were given to certain hypertension cases it would decrease their pressure, led us to try ethylene in such patients. Our series has not been sufficiently large as yet, to warrant definite conclusions.

To some this increase in blood pressure may seem a disadvantage, due to the fact that it results in increased bleeding during the operation. However, if there is an increase of blood pressure during the operation, all bleeding points are carefully ligated before the abdomen is closed, thereby avoiding postoperative hemorrhage. Whereas, with ether anesthesia, where there is lowering of blood pressure, one might overlook a small bleeding point, so that when pressure returns to normal a postoperative hemorrhage might occur. Is it not better to have an anesthetic which will produce anesthesia, and still be a cardiovascular stimulant rather than one which is a depressant?

HASTENS COAGULATION OF BLOOD

Recent investigation by Straus and Rubin shows that the coagulation time and the bleeding time were markedly decreased during and following the administration of ethylene. This was especially noticeable in jaundice patients.

Leake and Hertzman⁴ of the University of Wisconsin, working along this line, found that there is much less acidosis during an ethylene-oxygen anesthesia than with ether or chloroform. They used the Van Slyke method for this determination. In considering one hundred major operations where ether was used, we found that there was a postoperative acetoneuria in about 85 per cent of the cases; whereas in one hundred major operations where ethylene was used the average was about 70 per cent. Acetone found in the urine, postoperatively, is of very little significance, for patients are usually deprived of

one or two meals before anesthesia and thus might show acetone in the urine without having had an anesthetic.

Infants, as well as patients, who are aged, are usually completely anesthetized, without the additional use of ether or a preliminary opiate.

RESPIRATORY FAILURE BEFORE HEART FAILURE IN LETHAL DOSES

Experiments on dogs show that respiratory failure comes long before cardiac failure; and the dogs always responded to artificial respiration after a lethal dose.

TWO DISADVANTAGES OF ETHYLENE

1. Odor. 2. Danger of explosion. The odor is complained of when the gas is first introduced into the operating room; but after its continued use it is scarcely noticeable, except to newcomers or visitors.

Ethylene is inflammable, and with certain mixtures of air and oxygen is highly explosive. Experiments worked out by Brown⁶ of Toronto show that ether vapor is more highly explosive than ethylene gas. The thermocautery should never be used on a patient to whom ethylene is being administered; neither should ethylene be given in the x-ray room nor where high frequency is used as a cautery. Luckhardt says that, contrary to the common belief, nitrous oxide will ignite with an ensuing explosion, but not nearly as readily as ethylene gas or ether vapor.

A while back a doctor in Kansas, while cauterizing an urethral caruncle with a high frequency machine, experienced an explosion with nitrous oxide oxygen. A Hydebrink gas apparatus was the one used, and there was no ether in the vicinity; yet the patient was badly burned and received a court judgment of six thousand dollars.

Heaney reported two explosions with ethylene in obstetrical work, which he attributed to static sparks. They occurred in the same delivery room, the same anesthetist using a McKesson gas machine on both occasions. There was no free flame present on either occasion; no one was badly hurt. He also reported an explosion about a year ago, while using nitrous oxide and oxygen in the same delivery room, under similar circumstances. He stated further that a certain manufacturer of gas machines informed him that there are about 100 explosions per year from one cause or another while using ether in conjunction with nitrous oxide oxygen. Luckhardt, of Chicago, states that explosions from static sparks are easily overcome by grounding the gas machine and running a wire through the rubber tubing from the gas machine to patient.

CONCLUSIONS

While the use of ethylene is of quite recent origin in the field of inhalation anesthesia, we have endeavored to give it a fair consideration and are well pleased with the results obtained. However, at present we add 1 to 5 per cent carbon dioxide as a respiratory stimulant, whereby we believe we obtain better relaxation, and in most cases are enabled to eliminate the use of ether entirely. Our reason for

adding carbon dioxide is that surgeons generally insist upon giving morphin preoperatively, which is a respiratory depressant. In many cases the respiratory center is so depressed that the patient does not breathe sufficiently well to aerate the lungs with ethylene, and as a consequence proper relaxation is not obtained. With the mixture just indicated this is overcome, and we believe it will add to the efficiency of this comparatively new anesthetic.

Glendale Sanitarium and Hospital.

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Anti-syphilitic Treatment of Pregnant Women—One of the many important things that Doctor Hopkins brought out, and it needs to be emphasized and repeated again and again, is the enormous benefits that have come from prenatal treatments of the syphilitic mother. . . . That is the first point that Doctor Hopkins emphasized, and I want to say it again in expressing the thought that a thing has to be said again and again in order that it may sink in. I find that true in my own case. I hear things many times and say to myself, "Well, I heard that a year ago." But it did not impress me profoundly. It simply caromed off the mind, so to speak, and I did not get it. But this is a thing worth remembering. We are getting from clinics all over the country corroboration of the fact that the syphilitic pregnant woman is peculiarly responsive to medical treatment. In no better way can the possible blindness of the child be more effectively warded off.—Park Lewis, proceedings of the Twelfth Annual Conference of the National Committee for the Prevention of Blindness.

What Is a Charitable Institution?—A point that has aroused a question in the minds of some legal jurisdictions is whether or not the charging of fees to private patients affects adversely the legal status of a charitable hospital, and in this connection the following decisions selected from Lapp and Ketacham on Hospital Law are offered:

"That fees are charged by a university or hospital is not controlling as to its being a charity, for only when such income is devoted to the profit of the founders and not used to carry on the work by adding to the endowment, etc., does it show the institution is a business and not a charity." (1916 *Butterworth vs. Keeler*, 219 N. Y. 444, 114 N. E., 803 offg. Judgment, 154 N. Y. S 744, 169, App. Div. 126.)

"What controls is not the receipt of income but its purpose. Income added to the endowment helps to make it possible for the work to go on. It is only when income may be applied to the profit of the founders that business has a beginning and charity an end. The line of division is the same whether the gift is devoted to education or to the relief of the poor, the halt and the blind."

"When the bequest is to an association whose beneficence is restricted to its members only, it is not a public charity." (*Bobb vs. Reed*, 5 Rawle (Penna.) 151, 28 Am. Dec. 650.)

"But, if extended to non-members, may be counted as public charity." (1848, *Pickering vs. Shotwell*, 10 Pa. 23.)—Bulletin A. M. A., April, 1927—Atlantic Medical Journal.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects and discussants invited.

THE TREATMENT OF RINGWORM

Samuel Ayres Jr., Los Angeles—The successful treatment of ringworm affords an excellent opportunity for the practice of the art of medicine. The science of the matter is very simple: the disease is caused by a fungus; the cure consists in killing the fungus. Any problem is rendered less complicated if at least one of the important factors remains constant. In the case of ringworm I propose to make the medication a constant, varying the other procedures to suit the particular variety and location of the disease. The antiparasitic application having probably the widest range of usefulness in this disease is known as Whitfield's ointment, which consists of the following:

Salicylic acid	2	|
Benzoic acid	4	|
Benzoinated lard	30	|mx

Exceptional cases may be encountered which may not respond to this treatment, but if the proper technique is observed, they will be extremely few.

Ringworm of the scalp, or *tinea capitis*, presents two common clinical varieties, the small spore type with sharply defined scaly areas in which the hair is broken off close to the scalp, and the large spore type with patchy scaling but with a more diffuse involvement, relatively few hair stumps and no definite areas of baldness. Either of these types may acquire a secondary bacterial infection with large, swollen, inflamed areas surmounted by follicular pustules. The following technique will usually result in a cure in about six weeks:

Epilation. The diseased hairs must be removed to get rid of infected material, since the fungus is mostly on the outside of or within the hair itself, extending a considerable distance below the surface of the skin, and to allow medication to penetrate more easily into the follicle. Mechanical epilation by means of epilating forceps, adhesive plaster or wax are satisfactory if carried out intelligently. It is advisable to demonstrate the method of epilation before the parent and to insist that the parent continue the process every day, and to check up on the progress at least once a week. After the first epilation has been accomplished, the entire scalp should be shaved. This makes it possible not only to treat the affected areas, but to prevent new areas from developing by applying the ointment to the entire scalp and vigorously rubbing in for at least five minutes twice a day. If this should irritate the scalp after a few days, it may be omitted for a short time, substituting a milder preparation, such as 2 per cent ammoniated mercury ointment, resuming when the irritation subsides.

Headgear, such as combs, brushes, hats, etc., should be discarded. Skull caps made of clean

muslin should be worn day and night to keep the ointment in contact with the scalp, to protect the hats and pillows from contamination, and to keep the child from scratching or handling the diseased areas. The skull cap should be changed each twenty-four hours, boiling the old one for fifteen minutes before using again.

Secondary infection can be controlled by the temporary application of antiseptic wet dressings and exposure to the ultra-violet light.

The physician should exercise careful supervision and should continue the treatment for at least two weeks after the disease seems to be entirely cured. The presence of any broken, easily removed hair stumps means that the disease is still present. X-ray has been advocated as an easy method of epilation and it certainly does simplify the treatment, but it is not without danger; the margin of safety between the dose necessary to produce temporary loss of hair and the dose which may result in the permanent loss of hair is not large. In treating a benign disease which will with proper technique respond to more conservative measures, it seems hardly justifiable to take even a small chance of doing irreparable damage. In my opinion epilation by x-ray should be resorted to only in the event of failure of the above method, and that will be extremely seldom. Ultraviolet light does not penetrate sufficiently to affect ringworm deep in the hair follicles.

Ringworm of the glabrous skin or *tinea circinata* is the common type of ring-shaped lesion frequently produced by contact with an infected cat. Treatment of this type offers no problem. Application of Whitfield's ointment twice a day for about a week usually suffices. Iodin is an old remedy, but the cure is frequently worse than the disease because of its tendency to blister.

Ringworm of the nails, or *onychomycosis*, is one of the most stubborn types of all. As much of the affected nail as possible should be trimmed away with scissors and the remainder scraped with the edge of a glass slide after applying a drop of 40 per cent KOH to soften the nail substance. This should be repeated at weekly intervals, with the constant application of Whitfield's ointment between scrapings. Gloves which have come in contact with the affected nails should be discarded.

Tinea versicolor, or ringworm of the chest and back, is not so highly contagious as the other types, but is extremely chronic, often persisting for fifteen or twenty years or more. Whitfield's ointment applied twice daily for a week usually cures the condition. After a week's rest it should be applied again for a week. The clothing which comes in contact with the skin should be sterilized.

Epidermophytosis, or eczematoid ringworm of

the hands, feet and genitocrural region, yields quickly to Whitfield's ointment usually within two weeks. Vesicles should be incised to permit easier penetration of the medicament. Three apparent sources of difficulty should be mentioned. Some patients complain that no matter how long they use the ointment, their skin continues to form scales; this is due to the fact that the salicylic acid stimulates exfoliation, which very closely resembles the scaling caused originally by the disease, and which disappears promptly on switching to a milder application. Again, the too prolonged use of Whitfield's ointment may set up a secondary eczematization which takes the place of the original disease. In the third place, an error in diagnosis is occasionally made in pronouncing as epidermophytosis what in reality is a vesicular eczema of the palms and soles. In some instances the two diseases so closely resemble each other that the differential diagnosis rests on finding the parasites microscopically in excised vesicles. Obviously Whitfield's ointment would greatly aggravate any eruption of the eczema group.

Ringworm of the beard, or tinea sycosis (to be differentiated from sycosis vulgaris, a simple pyogenic infection) is treated along the same general lines as ringworm of the scalp, employing epilation of the diseased hairs. Use Whitfield's ointment and alternate with 2 per cent ammoniated mercury when evidence of irritation is seen or with antiseptic wet dressings and ultraviolet light when pustules predominate. Shaving apparatus should be sterilized after each use.

* * *

Hiram E. Miller, San Francisco—It is impossible to write anything of practical value on the general subject of "ringworm" infections of the human body in the short space allotted for this discussion. The diagnosis and treatment of tinea infections of the scalp, beard, groin, body and nails have not materially changed in the last few years. The marked increase in the prevalence of "ringworm" infections of the hands and feet, and the difficulties encountered in successfully combating them, makes ringworm a subject of considerable interest to the general practitioner as well as the dermatologist. I will limit my discussion to this phase of the subject.

There are two general clinical types of "ringworm" infection occurring on the hands and feet: (1) The acute vesicular, and (2) the chronic intertrigenous.

The acute type may develop suddenly in twenty-four to forty-eight hours with perhaps hundreds of pinhead sized vesicles or pustules more or less uniform in size diffusely scattered over the palms and dorsal surfaces of the hands and feet. This type of the disease was frequently classified in former years as a dysidrosis or pompholyx. About the only conditions to be considered in a differential diagnosis of the acute type are (1) eczema, (2) dermatitis from external irritants and (3) pompholyx or dysidrosis.

It is very unusual to find an eczema or a dermatitis from an external irritant involving all four

extremities and leaving the rest of the body uninvolved. At the present time it is debatable whether such a condition as pompholyx or dysidrosis exists. Many authorities think that all of them are acute tinea infections. The only way to make a positive diagnosis is to clip the roof off of one of the larger vesicles, preferably from the foot, put it on a slide with 1-20 per cent potassium hydroxide, and demonstrate the fungus under the microscope. This can be done in most of the cases, with a little skill and practice.

The treatment of the disease in the acute stage is tedious and exacting for the patient as well as the physician. Antitinea remedies cannot be used until the acute symptoms have been controlled. Soaking or compressing the areas in $\frac{1}{2}$ to 1 per cent aluminum acetata, or 1-5000 potassium permanganate have been found to be of the most value in this stage of the disease. It should be used for one to two weeks. Then a 1-2 per cent crude coal tar ointment may be resorted to for a week or two before starting specific antitinea remedies. If most of the lesions have involuted one may begin cautiously with 2-3 per cent salicylic acid and 4-6 per cent benzoic acid in petrolatum and lanolin. The strength of these ingredients may be increased as the disease improves, but must be continued with for three to four weeks after it is apparently well, or it will certainly recur.

In the chronic intertrigenous form of the disease there is a white sodden mass of desquamating epithelium between the toes, with a more or less well defined, and at times, vesicular margin. There may be isolated small desquamative areas elsewhere on the feet or hands with a few dried up or active vesicles. This form of the disease may be confused with chronic eczema, psoriasis, syphilis, scabies, etc. A careful search will generally reveal the presence of the fungus in scales or dried up vesicles. In this chronic form of the disease 3 per cent salicylic and 6 per cent benzoic acid in petrolatum and lanolin can generally be used at once and the strength increased as occasion demands. If the sodden areas between the toes do not respond to this therapy, they may be scraped with a dull curette about twice a week and 4 per cent chrysarobin in chloroform applied.

Ideally, it should be a simple matter to cure a specific infection of this type. In practice it is often quite difficult. The ideal remedy must destroy the fungus without appreciably irritating the skin. Unfortunately, such a remedy has not been found. The fungus penetrates quite deep into the keratotic skin of the hands and feet, and to destroy successfully, it may require considerable skill and patience. The large number of drugs suggested in textbooks and medical periodicals for the treatment of "ringworm" of the hands and feet is of itself ample evidence as to the ineffectiveness of most of them.

* * *

Moses Scholtz, Los Angeles—Diagnosis of Ringworm of the Glabrous Skin—One of the most important clinical contributions by clinical dermatology of recent date is the identification and isolation of the group of epidermophytosis, i. e., trichophytosis. Until lately innumerable cases of

this type were regarded as eczemas and intertrigos just because the mycotic dermatoses have a strong tendency to attack intertriginous spaces and assume an eczematoid appearance.

The most common clinical types of epidermophytosis, now definitely established and bacteriologically confirmed, are interdigital vesicular and squamous, plantar and palmar, also the inguinal and axillar. The clinical evidence of these types of epidermophytosis is incredibly common. Here in southern California the spread of epidermophytosis has reached the stage not only of epidermic but actually of endemic.

In view of this it becomes a matter of vast clinical importance to render its diagnosis readily feasible and possible in the hands of the general practitioner. In spite of ample literature on the subject, it is strange that many practitioners seem to be unfamiliar with this important clinical group. The responsibility for this lies, to a great extent, with the current writers who over-emphasize the importance of microscopic and cultural bacteriologic examination and fail to mention and emphasize the clinical differential features of epidermophytosis.

It was my contention in an article published in the *New York Medical Journal and Record* in March, 1926, and conceded since then by many clinicians, that in clinical work the bacteriologic confirmation, though desirable, is not necessary; in fact, in many cases it is unobtainable and that, in the majority of cases, diagnosis can be made on clinical data alone.

The differential morphologic features sufficiently pathognomonic to enable one to make a clinical diagnosis of epidermophytosis are, in my experience, as follows:

In vesicular ringworm the vesicles are large, deep and stay discrete. On the other hand, eczematous vesicles are smaller, more superficially uniform in size, and tend to coalesce into diffuse ill-defined patches.

On being ruptured, trichophyton vesicles dry up quickly, showing a characteristic margined scaly edge, while eczematous vesicles, on being ruptured, continue to exude serum indefinitely.

Scaly or squamous trichophytosis can be readily recognized by sharply defined borders and circinate or gyrate margined edges. Here one must look for an "epidermal collarette" consisting of a margined festooned edge with upturned scales attached to the outer end and free toward the center.

Speaking generally, squamous eczematoid ringworm presents a picture of peripheral desquamation, while in eczema diffuse infiltration and exfoliation throughout the whole area of the patch are dominant morphologic features. Furthermore, eczema has no preferential localization. On the contrary, ringworm has a strong tendency to a selective localization such as, interdigital spaces both on the feet and hands, plantar and palmar surfaces, and inguinal and axillary regions.

As a rule, eczematoid ringworm is more superficial than common eczema, presents much less infiltration and hardly ever lichenification.

These few salient morphologic features, if kept in mind and looked for, offer a sufficient basis for

differential diagnosis and clinical identification of the trichophytic nature of an eczematoid looking patch.

* * *

Ernest K. Stratton, San Francisco—I believe that diagnosis of ringworm presents more difficulties to the general practitioner than does its management; for if one is not sure of the infectious nature of any skin disease he invariably hesitates to apply any but soothing medication; however, this disease in all of its phases except the acute vesicular type, which Doctor Miller has already discussed, continues to progress unless attacked by fungicides. Most textbooks on Dermatology recommend many different fungicides, advising the use of one in one part of the body and another in another part. The therapeutic principle is the same wherever used. A peeling preparation such as an ointment or alcoholic lotion containing 5 per cent salicylic acid is used first for the purpose of removing the upper layers of the epidermis, for the fungus is found underneath that layer. Secondly, a preparation for destroying the fungus, as iodine or resorcin, is used in combination or separately.

On the scalp, ringworm must be differentiated from favus, alopecia areata, and syphilitic alopecia. The small-spore ringworm infection of scalp causes the rather large circumscribed areas of partial baldness, presenting many broken off hairs and covered with grayish scales with evidence of inflammation.

Alopecia areata may present the same sized circumscribed areas, but these are devoid of hair and there is no evidence of inflammation.

In the large-spore ringworm infection of the scalp the patches are more numerous, smaller and more irregular in outline, and sometimes resemble the moth-eaten type of alopecia occasionally seen during the secondary phase of syphilis. Ringworm of the scalp occurs very rarely after the age of puberty, and if there is any doubt clinically, the diagnosis can always be confirmed by finding the spores in hair specimens which are properly prepared for microscopical examination. If ringworm infection of the scalp does not respond satisfactorily to medical treatment, then the hair of the entire scalp should be epilated by x-ray after the method of McKee.

On the body, ringworm may resemble lesions of seborrheic dermatitis, as well as those of pityriasis rosea, as any of these diseases may present circinate or oval erythematous scaly lesions; clinically the character of the scale, the distribution, the presence or absence of other foci of infection, as well as the subjective symptoms all aid in making a differential diagnosis. In new untreated lesions of ringworm, spores and mycelia can always be demonstrated microscopically. If one finds a case that does not respond satisfactorily to medical therapy, two-fifths of a skin erythema dose of unfiltered x-ray is usually sufficient to clear the skin.

Another Medical Marvel—Apparently they have been having a mad-dog scare in Connecticut—no, that's not what pleased me; it was the announcer who, in closing his description of certain regulations which had been adopted, stated that "Dogs may be left without muzzles for ten days after having been vaccinated against Rabbits."—*Springfield Union*.

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Editors GEORGE H. KRESS
EMMA W. POPE
Associate Editor for Nevada . . . HORACE J. BROWN
Associate Editor for Utah J. U. GIESY

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EDITORIALS

DOCTORS AND COMMUNITY CHESTS

What is here written is not intended to apply to that limited number of physicians and surgeons who have been so fortunate as to have amassed enough of the world's goods to be financially independent.

The thought in mind concerns the rights of physicians and surgeons who have not been so financially fortunate, but who, because of the large amount of charitable work which they daily do in their practice of the healing art, should in one sense be exempt from these extra money contributions to other charities and philanthropies, no matter how deserving these other altruistic endeavors may be.

Consistency and equity would seem to make logical and fair, the principle just outlined. The proposition could also be expressed as follows:

If physicians and surgeons, in the practice of their profession do as much, and often a great deal more than the great majority of their lay fellow citizens, so far as altruistic expression of service to unfortunate lay fellows is concerned, then would it not be fair to excuse them from money contributions in addition? It must be remembered that professional services are the equivalent of money, in other words, are payment "in kind."

* * *

Historically, it is interesting to note that those who have been marked off from their fellows as healers or physicians, from the beginning of time, have ever been loyal to the principle of service to unfortunate fellows, without regard to pecuniary

reward, and in far greater degree, in all probability, than any other mercantile, vocational or professional group.

The ancient Oath of Hippocrates breathes the spirit of this altruistic service. It shows itself to an extraordinary degree in our own day of material aggrandizement, when research men among us give to the world without any pecuniary benefit to themselves, the results of years of study and labor, in order that the lot of man on earth may be bettered, through measures which make for the preservation of man's health, and for his prolongation of life.

Take another example: Throughout the civilized world, wherever there are buildings or hospitals in which are housed large numbers of human beings afflicted by disease and injury, in conjunction with poverty, may be almost invariably found a group of physicians and surgeons giving skilled service, often on a purely gratuitous service or at extremely nominal compensation.

Again, in our own country and abroad, in thousands and thousands of doctors' offices and consultation rooms, there is a daily unostentatious exhibition of service, in aid and relief of unfortunate fellows who are afflicted by disease, injury and poverty, and here again such skilled service is rendered without return money compensation being expected or received.

It is granted that compensation often does come to the physician in such instances, through knowledge of the appreciation of the poverty-stricken patient, for the skilled aid so cheerfully and generously given. But the prosperous citizen outside, who also ought to be appreciative of this altruistic endeavor on the part of hosts of physicians and surgeons, these more prosperous citizens seem oblivious and indifferent thereto. Not only that, many of those often seem to think that physicians are obligated to do these things; and on top of it all, expect physicians to help support other charities, to which measured by the same standards, when the professional services are transposed into money values, their own contributions in comparison, might be termed most gingerly.

* * *

To cite a further example which would seem to be pertinent to this discussion:

The county hospitals of California present an excellent example of self-sacrificing and nonpecuniary professional service by physicians to those citizens of our state who are so unfortunate as to be handicapped at one and the same time by poverty, sickness or injury. The Los Angeles General Hospital is a good example. There is an institution of over one thousand beds, with an attending staff of local physicians and surgeons running in the neighborhood of two hundred. Without regard to the number of patients or of individual treatments, but on the basis of something like ten dollars per hour for professional services actually given, and an average fee of something like fifty dollars for a major operation, it has been computed that these two hundred attending physicians and surgeons donate to the rich county of Los Angeles, services which, at the above valuations, would run into the

stupendous sum of five hundred thousand dollars a year!

These services are often accepted by the citizens who are inmates of the institution, with gratitude for the comfort that restoration of health or saving of life means, even though many are unaware that the attending staff members donate their services.

It may be said also that the lay press of Los Angeles County has given and gives or makes little or no comment on this tremendous donation. By contrast, any donation for charitable and philanthropic purposes amounting to five hundred dollars and up, as a rule can find place for such publicity in the newspapers. If any single, or a group of lay citizens, gave fifty thousand dollars and up to the city for charitable purposes, the lay press without question would give very much publicity to the generous thought of these lay fellows. But the medical profession in Los Angeles County, through its colleagues on the attending staff, in that one single institution alone give something like five hundred thousand dollars worth of services, and hardly receives a "thank you." For year after year can be remembered when no such thanks were given, and when no particular mention or money valuation of services, was made in the reports that again and again were not even printed, because the rich county of Los Angeles was presumably too poor to spend money for the publication and distribution of a report of what the county hospital doctors were doing! Is it any wonder that many of the laity look upon doctors as somewhat peculiar individuals?

In other hospitals, and in clinics for ambulatory patients, and in a big majority of the offices of ethical physicians in private practice throughout this great state of California, gratuitous services along similar lines are constantly being given.

* * *

With such facts covering a long period of years, staring our authorities and lay citizens and organizations squarely in the face, it is surely no improper contention, that medical men who give so much gratuitous service in such generous measure might well be left off the follow-up solicitation and other lists, of those from whom money donations for general charities could be properly expected.

But what is the practice, and what is apt to happen?

When the time for a community chest campaign rolls around, the names of most of the ethical physicians of a community are distributed among the transient lay solicitors (who are doing their bit for charity) and who make the rounds of office buildings to secure donations for the chest.

Now there is no thought in these lines to in any way criticize the good intentions or the good results of a community chest organization and drive, because all who have had experience with administrative work in charitable and philanthropic projects know how necessary it is to keep down to a minimum the wastage of funds and efforts that comes from overlapping, or from haphazard, spasmodic altruistic endeavors. Community chests are splendid institutions, and should be supported, but the contention can surely be made that in seeking for

charities the necessary money support, the names of most physicians should be omitted from the solicitation lists. Chest managers can very easily obtain the names of attending staffs of hospitals, clinics and so on, to find out who among them were particularly giving generous thought and care to the poor who are sick and injured, and physicians who do their full share of practice for the poor should feel free to so state to chest and other charity solicitors.

* * *

This whole subject of charity money donation, in addition to service donation, is one that is intimately connected with medical economics. Physicians do themselves an injustice when they do not analyze the economic and social service factors that are involved, in order to properly outline for themselves a proper mode of action. As stated at the outset, the lines here written are not intended to keep any physician who so desires from giving money donations to charitable and philanthropic organizations and institutions, and particularly would not absolve that comparatively few of our number who are blessed with more than average financial means from doing their part, but for that very large number of practitioners who do their work from day to day in efficient fashion, and who, without blare of trumpets, donate a goodly portion of their best thought and energy to alleviate the suffering of unfortunate citizens, for such these words are written, in the hope of helping to protect them from well-meaning but not quite fair or equitable requests.

If the services we generously give to the unfortunate poor, are worthy services, then both we and the recipients should respect them. If we ourselves do not respect these services, we may rest assured, the remainder of the world will not. We will properly respect these services when we kindly and modestly but firmly acquaint the world in regard thereto. The world, in the last analysis means to be just and decently appreciative. If we give our lay citizens a proper opportunity to know of our own work, these lay citizens will of themselves conclude that we should not be asked to do more than our fair share.

A PUBLIC HEALTH INSTITUTE

Under the name "Public Health Institute" the county of Los Angeles recently had a first experience with a course of lectures on public health topics. By contrast, San Francisco, an older community from the standpoint of American civilization, has been for many years somewhat more fortunate, because for years its medical schools and its academy have brought notable medical men from other parts of our country and from abroad to give presentations of viewpoints on public health and medical problems, to both physicians and laymen.

At Los Angeles the effort referred to was made possibly largely through the Los Angeles County Health Department, its county health officer, Dr. J. L. Pomeroy, taking the initiative in the matter. The Public Health Institute was most fortunate in being able to induce so prominent an international authority on public health matters as Professor

C. E. A. Winslow, Lauder Professor of Public Health at Yale Medical School, to come to the Pacific Coast and take its practical leadership. The scope of the institute's work was outlined in the June number of this Journal, pages 818-819.

The folio of press clippings from the Los Angeles city papers, on the topics discussed in the lectures made a most commendable showing. News items, editorials and cartoons, all entered into the newspaper presentation of what was taking place in the county hall building. It was the kind of publicity medical men often talk about as being necessary, if the laity is to be given a proper understanding of health topics, but which is so rarely realized.

It would have been difficult to have found a speaker better fitted to give a broader orientation of public health problems than Professor Winslow of Yale. His long record of achievement in the United States Public Health Association, in special works where he has been called in as an expert, and his broad knowledge, scholarly attitude and gracious personality, from his opening talk, endeared him to the audiences in both the technical and the lay courses. His work entitles him to a return engagement to California, and at some future time it is to be hoped the California Medical Association will avail itself of his presence and viewpoints.

In our county and state medical associations we talk much of educating the public into a proper understanding of public health problems and their solution, but often permit our efforts to die with this expression of intent. It is extremely difficult to present some public health matters without getting into the domain of clinical or curative medicine. In our time, a discussion of curative medicine has, and often still means a basis for sectarian controversy on matters of healing, in which the ethical medical profession not infrequently seems to come out second best, because it refuses to resort to undignified methods of publicity. It required, therefore, forethought and considerable astuteness to carry through a series of lectures on public health matters without doing as much damage as good.

This Los Angeles Institute is mentioned editorially, primarily to call the attention of county medical societies in California to the institute's aims and accomplishments, so that in other communities, members of the medical profession who are interested might perhaps be tempted to bring about a better education of the lay portion of the community, on health matters that are of mutual interest to physicians and laity.

Nowadays, with all the blatant exploitation of cultism in its variegated forms, there is need of the ethical medical profession visualizing the psychological atmosphere of the people who make up our communities and state. If we can create such a proper visualization for ourselves and will then proceed to act, there need be little doubt that the great mass of lay citizens will be most happy to give to properly trained physicians and surgeons a full meed of recognition, praise and support in all sane health measures intended to bring about an improvement in community health. If we do not make such a proper visualization for ourselves, and do

our part, then we may rest assured that the laity will misunderstand and misinterpret us and our motives, and will be very prone to listen to and believe that faddists and misguided individuals who talk about so absurd a straw man as the "A. M. A. Trust," for instance, are speaking the truth instead of uttering a mass of ridiculous nonsense and lies.

Public health work is with us and is surging forward in amazing manner. Physicians have given it much of the foundation through their researches and their cooperation; and as pioneers and as co-workers, have given a vast amount of aid in all efforts to prevent disease, and to create environments conducive to good health and prolongation of life. We must not permit the honor that is ours by virtue of our past work, to be taken from us; and particularly we must not permit the leadership in this work which we have earned, and which logically belongs to our profession, to be taken from us by lay executives and others, who, many of them, until they began to draw down salaries for such work, knew little or nothing concerning it.

The ethical medical profession ever has been, and still is loyal to the traditions of service in the fields of both clinical and public health medicine. If its members are wise, they will keep up their interest in both important fields, and through an efficiency superior to that which can be acquired by those of lesser knowledge and training, will maintain their leadership, to the benefit of individual patients and to communities as well.

SHOULD PUBLIC HEALTH BOARDS BE COMPOSED OF LAYMEN OR OF PHYSICIANS?

The physician who officiates as a public health officer must deal with disease from a somewhat different standpoint than that of the private physician. The private physician is called in by a citizen who requests professional care, and who hopes for or expects cure of this, that or the other disease which is interfering with his, the citizen's, usefulness or comfort. The public health physician, on the other hand, has his work assigned to him by many physicians, usually a community, acting through its executive officials.

While the work of the private physician deals largely with his individual patients, the work of the public health officer physician has particularly to do with the general health interests of all citizens in his district, and deals especially with sanitary engineering, bacteriologic, epidemiologic and social service activities.

When a community's population runs into the thousands and thousands, such a public health officer physician finds it convenient to have an advisory board with which he can consult on matters of fundamental policy in his department. He is, as a matter of fact, a sort of an executive with a cabinet, only the cabinet members are usually not of his own choosing. Such health boards or cabinets, came into existence in the beginning, because public health officials and the communities alike felt that on certain matters in which the interests of citizens at large were apt to be affected, it would not be a

bad plan to have a group rather than a single man's viewpoint. When the executive officer and the advisory board members are all high type men, the results obtained in a department so managed, should be better than if the entire responsibility was lodged on the shoulders of one individual.

In the past, many of such advisory health boards have been composed entirely of physicians; or if not, then usually with a majority of physicians composing the membership. With the advent of new schools of medicine, the distribution has sometimes included physicians of different schools of the healing art. The work which has been done by such conjoint boards has in many instances been very creditable.

It occasioned some surprise, therefore, when a Los Angeles newspaper recently stated that its city health officer had gone on record as favoring a health board of five laymen to be appointed by the mayor, to act as his immediate advisors on matters of health and sanitation; with a health advisory board of twelve physicians who would presumably give more remote advice to this regular health board of laymen. In the last analysis in such a plan, the lay health board, in conjunction with the health officer, would have the final or real authority as to what should or should not be done in solving the community health problems.

The institution of such a lay health board would certainly seem to be somewhat of an innovation. Whether it would be an innovation for good or for ill, would be dependent largely upon the character, capacity and mutual good will of the men involved, namely, the health officer, the members of the lay health board of five, and of the medical advisory board of twelve. Whether this medical advisory board was to be divided among the so-called regulars, homeopaths, eclectics, chiropractors, naturopaths and others, to add to the further complications of the remote advice, was not stated.

This editorial comment is given because this proposed change seems to mark a somewhat important departure in methods of procedure as regards public health office management in a large city. Whether or not the proposed system is one that would ultimately work out as a desirable change generally, is however, a question. Our experience with advisory boards that have no real authority, has been that they are largely figure-head propositions. If such a medical advisory board should become a figure-head proposition, would it be to the advantage of organized medicine, as represented by ethical practitioners, to have much to do with the system? Should we as ethical physicians, permit the name of our particular group of the healing art to bear part of the responsibility, or at least receive the onus of mistakes of procedure, when we are not permitted to have any of the authority that would permit us to promulgate and work for the execution of those public health measures in which, because of our training, we as a group believe? These and other questions of similar import come to our mind in a consideration of this proposed innovation. It will be interesting to note how the plan works out, if it is put into operation.

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS OF THE C. M. A.

At the fifty-sixth annual session of the California Medical Association, held at Los Angeles, a special committee on revision of the constitution and by-laws brought in its tentative report to the House of Delegates. The present constitution and by-laws provide that all proposed amendments must be printed in *CALIFORNIA AND WESTERN MEDICINE*, and in the observance of this rule the various amendments that were presented at Los Angeles by the special committee, by the counsel of the association, and by individual members of the association, are printed on subsequent pages of *CALIFORNIA AND WESTERN MEDICINE*. At the same time the present constitution and by-laws has been reprinted. This has been deemed desirable, because there are only six copies or so of the present constitution and by-laws at hand. The consideration of proposed amendments made it desirable that the rules now in force should be obtainable by all members interested, if the best judgment was to be used in making changes.

The special committee on revision will continue its work, and from these various proposed amendments, will present to the Council of the Association a final draft of a complete constitution and by-laws; so that the members of the House of Delegates at the Sacramento meeting may have a foundation upon which to base their labors. A proposed amendment that is in the nature of an enabling clause, was submitted at the Los Angeles meeting, and if this is adopted at the Sacramento meeting, it will be possible for the House of Delegates at the fifty-seventh annual session, to practically act as a constitutional convention, with full authority to work out those rules of government, which in the experience of our own and other state medical associations, and of our own special geographical and social environments, would seem best adapted to the needs of the California Medical Association.

Value of a Poem by a Lunatic—A copy of a poem which was written in a lunatic asylum fetched 590 pounds sterling at the sale of the Britwell library recently, says the *New York Times*. It was "A Song of David," inscribed by Christopher Smart when he was immured in Bethlehem Hospital, "partly with charcoal on the walls or indented with a key on the panels of his cell," because writing materials were forbidden to him. Browning and Rossetti considered this poem to rank with the highest achievements of Milton or Keats. Doctor Johnson always held that Smart ought not to have been shut up. His comment was: "Smart insisted on people praying with him—also falling on his knees and saying prayers in the street or any other unusual place, but I would as lief pray with Kid Smart as anyone else. Another charge was that he did not love clean linen, and I have no passion for it."—*M. J. and Record*.

Diphtheria Immunization—A letter from Dr. Ralph Sheldon, health officer of Lyons, Wayne County, states that over 1400 or 98 per cent of the children in that village have been immunized against diphtheria in the past four years. At a recent clinic 258 children received the third dose of toxin-antitoxin, ninety-nine being of preschool age.—New York State Department of Health.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing editors.

Otorhinolaryngology

Disease of the Nasal Accessory Sinuses—The increased interest in the nasal accessory sinuses that has developed in recent years is continually bringing to light new data in reference to them. King, in the March issue of the *Journal of Otolaryngology*, points out the fact that chronic pathological changes may be present in the antra without marked signs in the nose. That undoubtedly is true; at least, there are times during the course of a chronic maxillary sinus involvement, when no suspicion of the pathological changes present would be obtained by inspection of the nasal cavities. This is also true in chronic involvement of the other sinuses, except, perhaps, the ethmoid cells. If this observation is correct, it is apparent that negative findings on inspection of the nasal cavities are insufficient to rule out pathological changes of the sinuses. On the other hand, it is also true that marked swelling of the turbinates and profuse mucus or mucopurulent discharge may be present, giving the intranasal appearance of accessory sinus involvement, when the x-ray will show them very clear. It is difficult to understand how the sinuses can all be so clear when the intranasal pathology is so marked, yet it is quite frequently so, especially in acute cases. Again, transillumination and x-ray will show the antra very cloudy, when irrigation will return no discharge.

Just why all this cloudiness in the x-ray of some sinuses is a question. It may be due to thickened membrane following an old chronic sinusitis or the bone of the sinus wall becoming more dense as the result of some long continued but now quiescent inflammatory process that has healed.

The maxillary sinuses are all fairly uniform in size. The frontal sinuses, however, vary greatly in size and shape, not only in different individuals, but on the two sides. For this reason, transillumination is quite unsatisfactory with these sinuses, unless both frontals transilluminate clearly. The maxillary sinuses transilluminate well.

Transillumination of the ethmoids is very unsatisfactory, and of the sphenoids is out of the question.

We believe that the frontal and maxillary sinuses that transilluminate clearly are normal and all others are suspicious.

Transillumination might well be done as a routine, and then many unsuspected maxillary and frontal sinus cases will be picked up. Only too frequently are headache, eye pain, hay fever, asthma, pain in the ears, and "catarrh" caused by sinus involvement.

CLINTON A. BURROWS,
Los Angeles.

Respiratory Diseases

Common Colds—Why do so many colds occur every year in October and December and, to a less degree, throughout the winter months? If this question could be answered scientifically, prevention and treatment would materially reduce the heavy toll of sickness and death from complications.

One apparently well established cause is the drying effect of heated houses upon the nasal mucous membranes. One function of the upper respiratory tract is the warming and moistening of respired air. Most homes are overheated and have insufficient moisture added to their warmth. As a result the epithelium of the nose becomes dried, and thereby traumatized and congested, giving bacteria a fertile field for growth. The deleterious effect of cool drafts in a warm room is explained on the same basis—heat conservation over the body is regulated by vasoconstriction in cold air, and dilation in warm. When part of the body is exposed to a cold draft the vessels of the nasal mucous membrane automatically dilate, and this, in the presence of the warm air of the room, causes abnormal congestion.

This matter of congestion is more important than at first we might think. Rarely does disease develop merely from the presence of bacteria. Bacteria plus congestion spell disease.

The fact that those working largely in the open air—arctic explorers, woodsmen, etc.—rarely suffer from respiratory infection further emphasizes the danger of overheated homes. Statistics of the Metropolitan Life Insurance Company show four times as many colds among those employed in the sedentary occupations as among outdoor workers.

Another factor favoring nasal and throat congestion is the presence of chronic diseases in the sinuses, and improper aerating space in the nose. Deviated septa, hypertrophied turbinates, and a poor nasal space, the result of a high palate and poor dental alignment, should receive more attention. With a space naturally limited, slight variations in congestion, due to sudden changes of temperature from outdoors to superheated houses, or sudden climatic variations, provide a good medium for bacterial growth.

Much research has been carried on, in the search for some etiologic bacteria. Almost all types of staphylococcus, streptococcus, pneumococcus, etc., have been found in the nose and throat, both during acute disease and normal health, and with very little variation in the flora at these different times. A filterable virus has been applied to nasal mucous membranes with the development of coryza. Anaphylactic coryzas constitute another large group of so-called "colds." We seem no nearer to finding a microscopic cause.

The most that can be said as to why "colds" de-

velop during the winter, and especially in October and December, is that this is the season for artificial heating of homes, much of which is without the necessary increase in moisture. Fatigue, mental and physical, overeating, and larger gatherings of people during the holidays, explain the December exacerbations. Some bacterium or filterable virus, not yet definitely identified, takes advantage of these circumstances and the "common cold" develops.

PHILIP H. PIERSON,
San Francisco.

Physical Therapeutics

Physical Therapeutics — Deep Heat — Diathermy—New therapeutic measures must pass through a period of experimental and clinical study before their real worth is established. Some branches of physical therapeutics are now passing through this testing period. Much clinical study has already been done, but this alone leads to empiricism. The great need now is study of physics and physiological action, because every rational physical therapeutic prescription must be based upon these fundamentals.

Particularly welcome just now is the work of Bettman and Crohn¹ on the production of deep heat by diathermy. Their work appears to show that the rise of temperature in deep tissues, produced by the passage of the high frequency current, is negligible. We have ascribed the favorable results obtained by diathermy to an active hyperemia produced by its deep heating effect. The resistance offered by the tissues to the passage of the current gives rise to heat, which in turn causes an increased blood flow through the part.

Technique of application is of first importance in all branches of physical therapeutics. Effects are altered greatly by small variations in technique. For this reason it is important when reporting experimental work to be specific about the method of procedure. Bettman and Crohn have not been as definite as might be desired in stating their experimental factors. The dosage of diathermy should be specified in terms of milliamperes, duration of application, and size of electrodes. Unless this is done the work cannot be duplicated and verified by other investigators.

If diathermy does not produce deep heat we must search further for an explanation of the good results obtained by Stewart² in the treatment of pneumonia, by Corbus³ in the treatment of genitourinary diseases, and by Crile⁴ in the use of diathermy through the liver, during gall-bladder surgery. Diathermy apparently produces favorable clinical results, but how does it act?

Bettman and Crohn have started a work which should be of great value to physical therapeutics, especially if it stimulates others to similar investigations.

FRED B. MOOR,
Loma Linda.

Cardiovascular Disorders

Coronary Thrombosis—Coronary thrombosis is a frequent cause of sudden death. Patients who survive the immediate attack may die a few weeks later from rupture of the myocardium through the area of infarction. If death does not occur within several weeks the individual's subsequent activities are greatly restricted because of a badly damaged heart muscle. The mortality in this condition is about 65 per cent. Lambert¹ states that coronary thrombosis occurs in about one-fifth of those suffering from coronary endarteritis. Many so-called attacks of "angina pectoris" are in reality due to coronary thrombosis.

In a typical attack of occlusion of one or more branches of the coronary arteries the patient suffers intense substernal pain which may radiate to the left arm and left side of the neck, or to both arms. In many instances the pain is referred to the epigastrium or to the gall bladder region, giving rise to erroneous diagnoses of acute surgical conditions of the abdomen. Nausea and vomiting occur frequently; Libman and Sacks² state that "dizziness at times appears to be the equivalent of nausea and vomiting, in the hyposensitive, at least."

If death does not occur immediately the patient presents the picture of shock. The face is ashen gray, and covered with cold sweat. Marked dyspnoea is present, and cyanosis is observed in many cases. The pulse is feeble, rapid, and may be very irregular. The blood pressure is usually low. Among other signs of cardiac failure crackling rales at the bases of both lungs may be detected. A slight elevation in temperature sometimes occurs within twenty-four hours following the attack. Libman and Sacks² call attention to an early leukocytosis as an important diagnostic feature; this is practically always present, and may occur within two hours after the infarction of the myocardium takes place. A localized pericardial friction rub is often heard over the area in which the infarct occurs if the patient lives twenty-four hours or more. The liver may be tender and slightly enlarged. When available, the electrocardiogram is of the greatest importance in confirming the diagnosis of coronary thrombosis, especially in the atypical cases. Berman and Mason, in a paper to be published, show the value of electrocardiography as a diagnostic measure in this condition; in their patients autopsy confirmed the electrocardiographic diagnosis in every instance.

The importance of the diagnosis of coronary thrombosis must not be overlooked. The attacks may simulate acute surgical conditions of the abdomen, and the patient may be subjected to an unnecessary operation if the proper diagnosis is not made. In atypical cases the diagnosis is not easy, but when available the electrocardiogram will practically always lead to the correct diagnosis.

WILLIAM H. LEAKE,
Los Angeles.

1. R. B. Bettman and Nathan M. Crohn: *J. A. M. A.*, Vol. 88, p. 532.

2. Stewart: *Physiotherapy*, 1925, Paul B. Hoeber, New York.

3. Corbus and O'Connor: *Diathermy in the Treatment of Genitourinary Diseases*, 1925, Bruce Publishing Company, St. Paul.

4. Crile: *J. A. M. A.*, Vol. 87, p. 309.

1. Lambert, Alexander: *American Heart Journal*, 1926, Vol. 2, p. 28.

2. Libman, E., and Sacks, B.: *American Heart Journal*, 1927, Vol. 2, p. 321.

Dermatology and Syphilology

Skin Infections of Palms and Soles (Dermatomycesis)—For several years manifestations of fungus infections of the hands and feet have been seen in increasing numbers of cases. Since the world war, these infections, like scabies, have become very common, approaching the proportions of an epidemic. The infecting agent is a yeast (most commonly a ringworm fungus, blastomycete, thrush or some other variety). The subject has become so important that it now occupies a prominent part in the program of all dermatological meetings. At the last American Dermatological Association meeting one session was devoted to full discussion of the question, and there are numerous articles on the same in the current literature.

The skin lesions are of various kinds. They all tend to be well circumscribed. In typical cases one sees on a palm or sole (or all four) groups of small, deeply seated, waxy vesicles. The tops of these vesicles washed in ether and soaked in potassium hydroxide solution or glacial acetic acid will reveal the presence of spores. Material planted on glucose agar and kept at room temperature will yield soon a typical cottony fungus growth. Often, instead of these pompholyx-like lesions, one sees roundish plaques or irregular patches resembling eczema. This condition is called "eczematoid ringworm." The fungus is found in scrapings from such lesions. The eruption may be acute, presenting a moist oozing surface with undermining of the bordering epidermis. Itching, which is sometimes quite severe, is usually present. Moist lesions sometimes seen on the webs of the fingers will often contain yeast organisms. Occasionally secondary infection occurs, resulting in lymphangitis and painful swelling of the regional lymph glands. The lesions may become dry and scaly like a chronic eczema. In the past there were doubtless many cases of epidermophytosis wrongly diagnosed as eczema. While the eruption is most common on the extremities, it is also seen on various parts of the body.

Often some finger and toe nails are involved, becoming dry and presenting underneath, crumbly material which tends to separate them from the nail bed at the borders. Yeast organisms also are now being found in tongue, buccal and genital mucus membrane lesions. Often an epidermophytosis of the internatal surface will be responsible for pruritus ani. Tinea cruris or "jock strap itch" is a common and well-known dermatosis.

These fungus infections are commonly picked up in gymnasia, golf clubs, Turkish baths or other places where people walk around in bare feet. Sometimes the laundry is responsible for infection. I know of one recent instance where an infected cat was found sleeping on a pile of recently laundered clothing. It has been contracted by nurses and physicians through direct contact with patients. Susceptibility varies greatly. Some individuals suffer frequent reinfections.

Treatment—It must be remembered first that the disease is apt to be very obstinate. In White's series of cases (*Archives of Dermatology and Syphilology*, Vol. 15, No. 4, p. 387-414, April, 1927) the duration of the disease before consultation

varied from six days to thirty years. In the greatest number of his cases it had existed from one to two years.

For prophylaxis one should always wear sterilizable sandals or wooden shoes while walking around in dressing and shower rooms of baths, athletic and golf clubs. Old socks, shoes and gloves that probably are infected should be destroyed. It is well to remember that handles of golf clubs and athletic clothes are found to harbor the infection.

One should endeavor to improve the patient's physical condition. Naturally indications will vary with the individual. Usually it will be found that a low sugar diet will help. These fungi grow well in a sugar medium.

There are various parasitocides that kill the infection, but they have to be used with care and the formulae varied to meet changing conditions. Iodin, mercurochrome, potassium permanganate silver salts, phenol, chrysarobin, thymol and oil of cinnamon are all recommended. White finds a 2 per cent aqueous solution of mercurochrome very useful. In some cases the foci are eradicated more readily by one of these agents than by another. Changing back and forth from one parasiticide to another may be necessary. The well known and popular Whitfield's ointment is helpful in most cases and occasionally is promptly curative, but it must not be used very long continuously. It usually consists of salicylic acid (6 per cent) and benzoic acid (12 per cent) in lanolin or vaseline. The proportions of these ingredients are varied from time to time. Sooner or later the condition assumes the characteristic picture of an eczema. Then the tars are very useful. Crude coal tar may act very effectively here, starting in with a 5 per cent ointment and increasing the strength gradually. Carefully administered Röntgen therapy and sometimes sun or quartz lamp exposures often give good results. There is a tendency often to over treat this disease, thus delaying recovery. Seldom is one's skill in dermatological therapeutics put to as severe a test as in the handling of these dermatomycoses.

HARRY E. ALDERSON,
San Francisco.

Poisons and Harmful Drugs Found in Some Cosmetics—The dangerous character of wood alcohol is so well established that it would appear almost incredible that anyone would dare offer a preparation containing wood alcohol for use on the human body. Wood alcohol is, however, but one of the many poisonous drugs that have been found in so-called cosmetics.

Of the potent drugs of a possibly harmful nature that are used in so-called hair restoratives, there are lead acetate, silver nitrate, paraphenyldiamine, and resorcin. The beauty washes and face enamels contain an even more impressive array of dangerously potent drugs including flake white or lead carbonate, lead plaster, corrosive sublimate or mercuric chloride, calomel, white precipitate or ammoniated mercury, pearl white or bismuth subnitrate, zinc white or zinc oxide, Chinese or commercial zinc oxide and zinc soap.

Flake white is the ordinary white lead of commerce. It is also known as body white, silver white, Dutch white, French white, London white, Roman white, and China white. It is generally recognized as the common cause of industrial lead poisoning.

It has also been observed that females are more susceptible to the action of metallic poisons than are males.—*United States Daily*.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

PERCY T. PHILLIPS.....President
WILLIAM H. KIGER.....President-Elect
T. HENSHAW KELLY.....Vice-President
EMMA W. POPE.....Secretary-Editor

OFFICIAL NOTICES

Proposed Amendments to the Constitution and By-Laws of California Medical Association—On subsequent pages in this August issue of CALIFORNIA AND WESTERN MEDICINE are printed the present Constitution and By-Laws of the California Medical Association. Also all amendments which were presented at the meetings of the House of Delegates at the fifty-sixth annual session, at Los Angeles, April 25-28, 1927. The present Constitution and By-Laws provide that all proposed amendments must be printed in the Journal before such can be acted upon at a succeeding annual session.

The special committee on revision of Constitution and By-Laws will draft from the present and the proposed amendments a composite, which will be considered by the Council, and which will be presented at the fifty-seventh annual session of the California Medical Association, at Sacramento.

COMPONENT COUNTY SOCIETIES

ORANGE COUNTY

The Association has completed the first half of another successful year.

In January the annual banquet was held at the Mission Inn in Fullerton. Dr. R. A. Cushman acted as Toastmaster for the occasion and called for talks from Drs. Bessie S. Martell, H. M. Robertson, F. E. Coulter and Mr. Thomas L. McFadden. An interesting number of entertainment features was scattered through the program. The evening was acclaimed most worth while by the large number of members in attendance.

The scientific meetings have all been well attended and the programs have been of the best. In February Dr. Paul E. Ferrier of Pasadena gave a very excellent paper on "Renal Tuberculosis." In March Dr. Orville N. Meland of the Albert Soiland Radiological Clinic gave a comprehensive talk on "Radiation Therapy in Benign and Malignant Conditions." In April Dr. Irwin C. Sutton of Hollywood ably reviewed "The Newer Methods of Treatment for Syphilis." In May we were entertained in a most delightful manner by our president, Dr. D. C. Cowles, and Mrs. Cowles at their home in Fullerton. Dr. Harland Shoemaker of Los Angeles, chairman of the Legislative Committee of the State Association gave a very interesting talk on the difficulties encountered and the work accomplished at the recent session of the Legislature. In June Dr. Robert W. Langley of Los Angeles gave an instructive discussion on "The Electro-cardiogram and Its Interpretation." We feel that the choice of speakers during this period had been most fortunate.

A new fifty thousand dollar wing is being added to the Orange County General Hospital, which will include needed bed space and clinic rooms. The first unit of the new Santa Ana Valley Hospital is about completed and will soon be occupied. These two projects will add very materially to hospital accommodations in the county.

An interesting work by Dr. C. D. Ball, one of the charter members of the society, was recently completed

with the publication of his "Orange County Medical History." The book is divided into three sections, the pioneer period, health organizations and hospitals of the county and the medical society. It is a valuable contribution to the historical literature of this section.

D. R. BALL, *Secretary*.

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SACRAMENTO COUNTY

Again, on June 21, the Medical Society gathered at the Community Hospital for what has proven to be the most successful of all the monthly meetings. With a wealth of clinical material, Dr. Dunlap and staff presented, approximately, twenty vitally interesting cases.

For the past several years any pathology of special interest has been photographed. Dunlap has had these made up into slides which were projected on the screen.

This is the type of evening where the greatest specialist of them all—the General Practitioner—may have a real "Field Day."

There were forty members in attendance, and all remained to enjoy the sumptuous banquet provided by the host.

BERT S. THOMAS, *Secretary*.

CHANGES IN MEMBERSHIP

New Members—Butte County—Leslie Freudenthal, Gridley.

San Diego County—William C. Cooke, San Diego; Priestley P. Osburn, El Cajon.

Santa Barbara County—Rodney F. Atsatt, Santa Barbara.

Stanislaus County—James A. Porter, Modesto.

Transferred Members—L. F. Luckie, from Fresno County to Oklahoma.

William M. Miller, from Sacramento County to Placer County.

DEATHS

Dillon, J. Marion. Died at Alhambra, June 28, 1927, age 52 years. Graduate St. Louis University, Missouri, 1906. Licensed in California, 1916. Doctor Dillon was a member of the Los Angeles County Medical Association, the California Medical Association, and Fellow of the the American Medical Association.

Hill, Merrill Washington. Died at San Francisco, May 30, 1927, age 77 years. Graduate of Hahn Medical College, Pennsylvania, 1871. Licensed in California, 1888. Doctor Hill was a member of the San Bernardino County Medical Society, the California Medical Association and the American Medical Association.

Rose, Emmason C. Died at Los Angeles, age 46 years. Graduate University and Bellevue Hospital Medical School, New York, 1904. Licensed in California, 1922. Doctor Rose was a member of the Los Angeles County Medical Association, the California Medical Association and the American Medical Association.

Rosenau, William Hellman. Died at Banning, June 21, 1927, age 30 years. Graduate of Johns Hopkins Medical School, 1921. Licensed in California, 1925. Doctor Rosenau was a member of the Riverside County Medical

Society, the California Medical Association and the American Medical Association.

Sanderson, Arthur J. Died at Santa Barbara, July 2, 1927, age 62 years. Graduate of Cooper Medical College, California, 1891. Licensed in 1895. Doctor Sanderson was a member of the Alameda County Medical Society, the California Medical Association, and Fellow of the American Medical Association.

IN MEMORIAM

Henry E. Southworth

When death takes from among us one of our fellows who was in his prime, and who seemed to be at the very height of his professional activity and service, the reason of such a loss is always difficult to understand.

So when death took Henry E. Southworth of Los Angeles on April 29, 1927, at the age of 54, it removed from the California Medical Association a member whose professional work had reflected distinct credit upon our organization.

Doctor Southworth was a graduate of Cooper Medical College, class of 1900. For years he had been on the general surgery staff of the Los Angeles General Hospital as one of its senior surgeons. For years also he had acted as the assistant medical director of the Industrial Accident Commission.

Doctor Southworth was of a modest, unassuming nature. Friends and patients alike loved him for his gentleness of thought, his honesty, his ability and his willingness and desire to be of the greatest possible service.

His loss is keenly felt by all who knew him.

UTAH STATE MEDICAL ASSOCIATION

W. R. CALDERWOOD, Salt Lake.....President
E. H. SMITH, Ogden.....President-Elect
FRANK B. STEELE, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....
.....Associate Editor for Utah

SLOW HASTE

In these days when speed and yet more speed seems to have become almost a mania with the race, and we live in a figurative sense at least "with our foot on the gas," the demand for haste in the practice of our profession is a thing which more and more the profession is called upon to combat. In the parlance of the streets, our patients exhibit more and more an impatience, and insist that we "make it snappy" regardless of rhyme or reason as applying to the case.

With the animation and pep of a *hors de combat* automobile limping into a garage, they present themselves in the office and with utter sang froid admit that it has been an indefinite time since they had their physical engine overhauled. Having spent by their own admission months or years as the case may be in getting into their present condition, they seek to insist that we put them back into a state approaching the normal in so far as sensation at least is concerned in a minimum of days. But—

What we formerly spoke of as the "*vis mediatrix naturae*" the medical force of nature—is one of the few things which even in this present day of ours, still continues at its former rate of speed. It's geared to a certain ratio, and that's all there is to it,

save that it is a thing of which the doctor must and the patient does not wish to take heed.

Yet it is a most amazing force, capable of producing the most at times surprising and gratifying results. We fancy that about 80 per cent of our patients would be cured by it alone if they would be content to give it a chance. In reality it is the one element in his work upon which the physician relies most. That haste makes waste is as true in our profession as in any other walk of life. And the ideals, the objectives of the profession, have not changed any more than the "curative" force of life. Still the welfare of the patient is or should be the main purpose of our work. Hence what was once termed politically "watchful waiting" is a very excellent policy still. Admitting that it is one which may frequently evoke criticism of an unkind and largely unthinking type, it is still a procedure which will frequently give by far the best end results. It must be regulated by intelligence, of course, with a readiness for whatever intervention is needed, should the need arise. But what we are aiming to stress is the masterfulness of non-intervention—unless the need for intervention should actually arise—the policy of making haste slowly—the necessity on the part of the doctor in this age of hurry, hurry—to avoid being led into a course of undue haste. An impatient patient is a hard patient to handle, an unpleasant one to combat. And yet—so many, many, many times in the years which have passed since we were first authorized to call ourselves a physician, we have seen the "curative force of life" perform its miracles of healing in coordination with the doctor who was wise enough, brave enough, steadfast and sincere enough to insist upon working with it, that we have come to feel that slow haste is the actual mark of the veteran in the profession—a sort of service stripe if you will, to show his experience in his art. And so this is a plea for insistence upon—time for diagnosis—time for an evaluation of the case—time for treatment plus the curative life force to bring results, on the part of the physician, combined with an instant readiness for whatsoever intervention, if any, may be required. Nowadays patients appear to need "slowing down" about as much as anything else.

Report of the Meetings of the House of Delegates, Held in the Auditorium of Medical Arts Building, Salt Lake City, Utah, June 23 to June 25, inclusive, 1927.

June 23, 1927, Meeting, Held at 12 Noon

Meeting called to order by the president, W. R. Calderwood, Salt Lake City; F. B. Steele, secretary.

The secretary called the roll of the House of Delegates and declared a quorum present.

Reading of minutes of last annual meeting was dispensed with, inasmuch as they had been published in Journal—CALIFORNIA AND WESTERN MEDICINE.

The president appointed the following a Reference Committee: W. R. Tyndale, chairman; Robert T. Jellison and C. L. Shields.

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the Utah State Medical Association:—I have the honor to submit the following report for the year 1926-27:

Membership—We come to this annual meeting of the House of Delegates with a greater paid-up membership than ever before in the history of the association. This

is due chiefly to the increase in membership in Salt Lake, Weber and Utah counties. The membership of the association, tabulated and compared with the membership at the time of our last annual meeting, is as follows:

	1927	1926	Loss or Gain
Box Elder County	8	8	0
Cache Valley	16	14	2
Carbon County	15	15	0
Salt Lake County	234	218	16
Uintah County	6	7	1
Utah County	42	30	12
Weber County	49	46	3
	370	338	32

Notwithstanding this apparently satisfactory condition, there are many eligible physicians in the state who are not members of any medical society. There are likewise quite a number who were formerly members of this association who are not now on our roll. I recently received a communication from the office of the secretary of the American Medical Association, containing a list of thirty-three names, members last year, who have not affiliated this year. Many of these, however, will come in later in the year.

Deaths—The hand of death has been laid heavily on our association since our last gathering together. The following members have responded to their last call:

From Salt Lake County—S. H. Pinkerton, June 19, 1926; S. H. Allen, August 30, 1926; R. W. Fisher, January 16, 1927; W. S. Ellerbeck, February 17, 1927; Warren Benjamin, April 30, 1927.

From Utah County—J. J. Steiner, July 20, 1926.

From Weber County—E. M. Conroy, August 12, 1926; Le Roy Ballentyne, March 23, 1927.

More extended notice of these losses will be given by the Committee on Necrology.

Official Visits—Early in his administration, President Calderwood caused invitations to be issued to the component societies for suggestions as to opportune times for official visits. Response was received from two societies.

On Wednesday evening, December 8, the officers and Council visited Utah County Medical Society. A splendid program was given and the officers were delightfully entertained. Dinner was served at the Roberts Hotel. The society showed every evidence of healthy activity.

On December 9, the officers and Council visited Weber County Medical Society on the occasion of their installation of officers and annual dinner. This function was held at the Weber Club and was characterized by the usual lavish hospitality for which the Ogden physicians are well known.

Constitution and By-Laws—At the 1925 session of the American Medical Association was reported the draft of a Constitution and By-Laws thought to be suitable for adoption by constituent state associations. This matter was referred by former President Gibbons to a committee which reported the same, with modifications, to the house one year ago. It is desirable that there shall be uniformity as to basic provisions of our laws.

A year ago your secretary urgently recommended the consideration by this body of the question of Periodic Examination of the Apparently Well. This procedure is rapidly making progress in other jurisdictions, and it seems to me that it is of outstanding importance.

I would likewise earnestly suggest that this body give prayerful attention to the matter of bringing into the fold of organized medicine the very considerable percentage of eligible physicians in the state who are not now in any way affiliated. There are about 520 physicians practicing in this state; there are 370 on our rolls.

Conclusion—Your secretary desires to offer grateful acknowledgment and to express his sincere appreciation for the courtesies and kindly co-operation received from the officers and members of the association.

F. B. STEELE,
Secretary.

Report of the secretary referred to the Reference Committee.

REPORT OF THE TREASURER
Utah State Medical Association

For the period of May 6, 1926, to June 22, 1927

Receipts—

Cash in National Copper Bank Checking Account on May 6, 1926	\$3,911.24
Dues of members received from the component County Medical Societies:	
Salt Lake County Medical Society	\$1,229.20
Box Elder County Medical Society	40.00
Cache County Medical Society....	80.00
Carbon County Medical Society..	110.00
Uintah County Medical Society..	30.00
Utah County Medical Society.....	255.00
Weber County Medical Society....	275.00

	\$2,019.20	\$2,019.20
From Postgraduate Committee.....		460.00

Total Receipts \$6,290.44

Disbursements—

Expenses incident to the thirty-second annual meeting, May 6, 7 and 8, 1926:	
Entertainment of guests, hotel bills, use of baloptican and operator, and clerical service....	\$238.25
Expense of the 1926 postgraduate course, August 23, 24 and 25, 1926:	
Expenses of Dr. Warfield T. Long-cope	\$208.75
Hotel Utah bill	20.55
Stenographic service	32.08
Telegrams	20.60
Clerk	6.00
	\$287.98

Expense allowance of delegate to American Medical Association	150.00
Subscriptions to CALIFORNIA AND WESTERN MEDICINE, at \$2.00 per member	708.00
Salary of the treasurer, at \$25.00 per annum....	25.00
Fidelity bond of the treasurer, yearly premium	2.50
Salary of the secretary, at \$250.00 per annum	250.00
Allowance for an Amanuensis for the secretary, at \$10 per month	160.00
American Medical Directory (tenth edition)..	12.00
Floral offerings for deceased members	20.00
Net proceeds of 1926 postgraduate course to Harlow Brooks fund	172.02
Printing, binding, stationery, etc.	134.02
Net proceeds of 1925 postgraduate course to Harlow Brooks fund	928.47
Stenographic service and telephoning	107.07
Bill of Dr. Rowntree of 1925 Logan meeting	4.25

Total Disbursements	\$3,199.09
Balance of receipts over disbursements	\$3,190.88

Savings Account—Amount in National Copper Bank Savings Account No. 18973 (May 6, 1926)	\$1,515.92
Net proceeds from 1925 postgraduate course	\$928.47
Net proceeds from 1926 postgraduate course (December 24, 1926)	172.02
October 1, 1926, interest on savings account (12-24-26)	42.75
April 1, 1927, interest on savings account (6-17-27)	51.64
May 15, 1926, bond coupons	6.39
November 15, 1926, bond coupons	6.36
May 15, 1927, bond coupons	6.39
	1,214.02

\$2,729.94

I also carry for the association three \$100.00 bonds of the Second Liberty Loan, with coupons attached thereto from November, 1927, to November, 1942.

EDWARD D. Lecompte,
Treasurer.

After an informal discussion, the report of the treasurer was referred to the Reference Committee with the Council associated.

REPORT OF THE COUNCIL

Dr. E. T. Hughes resigned as Councilor from the third district. The Council appointed Dr. Joseph Hughes to fill the vacancy until this meeting of the House of Delegates.

The Council recommend the adoption of the Constitution and By-Laws suggested by the American Medical Association, with changes favored by our committee, which will meet the conditions of our organization.

There have been no troubles or discrepancies in any of our districts during the year, the Utah State Medical Association being in better financial and other standing at present than at any time in its history.

The Council suggests that a greater effort be made to have the committees more thoroughly organize and systematize the work of attending to and entertaining guests of our Association.

J. C. LANDENBERGER,
Chairman of the Council.

The report of the Council was referred to the Reference Committee.

REPORT OF THE DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION

As your delegate to the American Medical Association, I beg to submit the following brief report:

The House of Delegates met four days. Lack of time will permit me to speak of only a few of the many interesting things which transpired at this meeting.

The House was called to order by the Speaker, Fred C. Warnhuis of Michigan. After receiving the report of the Credential Committee and sending a message of cordial greeting to the President of the United States, he delivered his official address. He deplored the fact that there is evidence of much "ill-advised, poor and unskilled surgery being done by undertrained and incompetent men." To remedy this he recommended and urged that proper action be taken to authorize the establishment of a commission of seven to study the question and submit a report at the session next year. He also regretted the fact that we have many substandard hospitals, in every state—institutions where much of the work done is mediocre. He recommended the State Medical Societies should cause their respective legislatures to pass laws outlining the administrative and staff requirements and to provide for supervisory inspection and control.

Wendell Phillips, in his presidential address, stressed and emphasized the fact that all public health policies and public health education should be controlled by physicians, as their training and experience make them the only persons capable of properly handling health problems. He also called attention to the recent opinion rendered by a majority of five to four of the judges of the Supreme Court, upholding the recent act of Congress limiting the amount of whiskey to one pint in ten days, that a physician can prescribe for a patient. The principle of a non-scientific body of law-makers passing laws restricting the amount of medicine a scientific physician may prescribe for his patient, was denounced, in no uncertain terms.

President-Elect, Jabez N. Jackson of Kansas City, spoke briefly, urging the American Medical Association to take the necessary measures to cause the Principles of Medical Ethics to be taught in every medical college. In his presidential address he stressed the great need of some means being provided whereby the middle classes can obtain hospital care without too great a burden. The poor are provided for in our charitable institutions and the rich can pay for their service, but the man with a small income must have help. He suggested that the rich partially endow a number of beds which may be used by this worthy class of patients.

Report of the Secretary—Secretary Olin West reported a new high mark, 93,882, in membership enrollment of about 140,000 physicians listed in the last directory. Of the 505 physicians listed in Utah, 369 are members of our State Society.

Trustees' Report—The Trustees reported 3720 new subscribers to the Journal, making a total of 90,312. The

sale of the advertising space amounted to \$798,059, which together with the subscriptions, make the income from the Journal considerable in excess of \$1,300,000.

The subscription list to the Hygea has increased to 50,575, which with the sale of advertising space made the gross income \$222,139.32. However, this amount was \$34,057.57 less than the cost of publication. In many of the states the Women's Auxiliaries have been active in extending the subscription list. Let this be a worthy suggestion for the Auxiliary of our state.

The Trustees also reported a growing interest in the subject of periodic health examination, as is shown by the sale of approximately 300,000 copies of the blanks. The Manual of Suggestions has been distributed to 65,000 physicians.

Bureau of Legal Medicine and Legislation—The bureau reported the revenue act of 1926 reduced the tax payable under the Harrison Narcotic Act, from \$3 per year to \$1.

On January 13, 1927, the Senate passed an act extending the Sheppard-Towner Maternity Law for two years, after amending the act so as to provide that the law should be void at the expiration of the period named. The House of Representatives accepted the Senate amendment and the President approved the act. Hence, the Sheppard-Towner Maternity Act will expire on June 30, 1929.

The Commissioner of Internal Revenue persists in his denial of the right of a physician to deduct, in the compilation of his income tax, expenses incurred in attending meetings of medical organizations.

Council on Physical Therapy—The Council on Physical Therapy which was established last year, for studying and standardizing equipment, reported much progress. Hospitals and physicians interested in this subject will find their council and advice very valuable.

Library—The work of the library has been greatly extended. The package library and the periodical lending service of the library has become very helpful and popular, especially for the doctors located in remote districts, who do not have access to large medical libraries.

The scientific exhibit has grown into a most instructive institution. This year the exhibit occupied one entire floor of the auditorium, where numerous clinical, pathological and microscopic specimens were shown.

Report of the Judicial Council—This report was most interesting, as the Council gave their opinion on two very important questions: contract practice and condition of membership. They divided the contract practice into two classes—the legal or good, and illegal or unethical. Legal contract practice is found in small communities, or mining camps, where it is necessary to make some sort of a contract in order to insure a compensation for the physician. Certain industrial situations arise where the companies are compelled by law to provide medical care for their employees.

Contract practice is unfair and unethical when: (1) Compensation received is inadequate, based on the usual fees paid for the same kind of service and class of people in the community; (2) when compensation is so low as to make it impossible for competent service to be rendered; (3) when there is underbidding by physicians in order to secure the contract; (4) when there is solicitation of patients, directly or indirectly.

At the present time the American Medical Association has no jurisdiction over its membership, as this function rests wholly with the component societies. The Judicial Council thought it wise to make some provisions whereby the Association could control its membership, but such a resolution was lost.

Report of the Council on Medical Education and Hospitals—The Council reported that the number of medical students enrolled has increased from 12,930 in 1919 to 19,432 at the present time. The supply of physicians in the United States is 133 for each 100,000 people, as compared with 92 in Great Britain, 77 in Switzerland, 73 in Japan, 35 in France and 28 in Sweden.

At the Dallas session a committee was appointed to investigate the need of establishing a home for indigent

physicians. George H. Simmons, chairman, reported that after a thorough investigation and due consideration, the committee found the need for a national home for incapacitated and indigent physicians is not sufficient to warrant the American Medical Association in establishing, managing and maintaining such a home.

Report of the Committee on Nurses and Nursing Education—At the Dallas session a resolution was passed requesting the Board of Trustees to appoint a committee to investigate the entire nursing problem, make a report and recommendations, with a view of increasing the number of nurses, improving the service at a decreased cost to the patient. This committee submitted a lengthy report, giving a survey of the entire nursing problem. Their chief suggestion is that the period of training should be twenty-eight months; the first four months to be devoted to concentrated study of fundamental anatomy, bacteriology, physiology, chemistry and dietetics, and the two succeeding years be devoted as far as possible to teaching the art of nursing by demonstration, participation and practice. The committee was continued and directed to consult with the national nurses' organizations and given an appropriation of \$5000 to continue their work and make definite recommendations at the next meeting.

Election of Officers and Meeting Place—The names of W. S. Thayer of Maryland, W. G. Morgan of the District of Columbia, and P. M. Marvel, Sr., of New Jersey, were presented for the office of President-Elect. W. S. Thayer was elected on the second ballot. C. A. Elliott of Illinois was nominated for Vice-President. Olin West was again chosen for the Secretary and Fred C. Warnshuis was re-elected Speaker of the House.

Two cities, Minneapolis and Kansas City, extended an invitation for the next meeting. The House of Delegates voted in favor of Minneapolis, providing the investigations of the Board of Trustees find meeting space and hotel accommodations ample.

E. M. NEHER,
Delegate.

The report of the delegate to the A. M. A. was referred to the Reference Committee.

On motion it was ordered that copies of the report of the delegate to the American Medical Association be furnished to each of the component societies to be read in regular session.

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The Committee on Scientific Work had communicated with doctors in all the leading medical schools of the United States, in an effort to secure speakers for the program, the idea being to use outside talent for the speakers. As a result we secured the following men:

Dean Lewis, professor of surgery, Johns Hopkins University Medical School; Harold L. Amos, associate professor of medicine, Johns Hopkins University; Robert B. Osgood, professor of orthopedic surgery, Harvard University Medical School; Frank Hinman, professor of urology, University of California Medical School; T. Howard Plank of San Francisco, California; Henry W. Gibbons of San Francisco, California; E. Van Norman Emory, director of child's guidance clinic, Los Angeles, California, and Professor Reuben L. Hill of the Utah Agricultural College Experiment Station.

These speakers were secured, as stated, through correspondence, and the only expenses incurred were the local hotel bills and entertainment.

JOHN Z. BROWN,
Chairman.

The report on Scientific Work was ordered referred to the Reference Committee.

On motion a vote of thanks was extended to this committee for the services rendered.

REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Your Committee on Public Policy and Legislation had quite a busy time while the legislature was in session.

We had frequent meetings and every member of the committee was active and awake to his duties.

This committee and a similar committee from the Salt Lake County Medical Society met jointly frequently, also the officers of the County and State Association met with us and gave us their advice and support.

We attended public hearings on various medical bills in both houses of the legislature.

Our methods of keeping posted was largely through the kindness of the offices of the State Board of Health and the Department of Registration. This necessitated frequent visits to these offices to obtain copies of the various bills that were introduced and other information.

I would like to recommend that the chairman of this committee in the future find some member of the legislature that is willing to place the chairman's name on the mailing list so that all bills and the daily transactions will be mailed direct every morning and thus avoid so many trips to the capitol. Such information coming promptly every morning would give an opportunity for immediate action and would keep the members of the committee in touch with all matters during the time the legislature is in session.

I should like to recommend further, while the legislature is in session, that a weekly bulletin embodying a digest of the various bills affecting the profession with recommendations for defeating or sponsoring such measures be prepared by the State Secretary and mailed to the Secretary of each component county society, giving the information and advice regarding pending legislation so that a united medical profession may use its influence in preserving high standards of education.

Attached hereto is a copy of a letter setting forth a synopsis of the various bills affecting the medical profession that came up before the last legislature.

The following resolution is submitted for your consideration.

M. L. RICH, *Chairman*,
C. A. CALLISTER,
FOSTER J. CURTIS.

RESOLUTION—*Be It Resolved* by the House of Delegates of the Utah State Medical Association that in order to safeguard the actions of the medical profession in their dealings with the National Prohibition Act and the Harrison Narcotic Act, the following principles are suggested, for enactment into law:

1. Adequate public notice shall be given, and opportunity afforded interested parties to be heard, by brief or orally, before any regulation is promulgated.
2. Any regulation promulgated shall be officially published so as to inform the interested public of that fact.
3. A reasonable time shall be allowed after the promulgation of any regulation before it becomes effective.
4. Authentic copies of all regulations shall be available at all times to persons requesting them.
5. All regulations promulgated shall be officially reported to Congress annually and be published in authentic form in the Statutes at Large or in some other proper, generally available form.
6. When Congress first convenes after the enactment of the proposed law all regulations in force shall be officially reported to Congress and shall be published in authentic form in the Statutes at Large in some proper and convenient form, so as to bring publication up to date.
7. To meet emergencies, the President may waive the time limits and proceedings normally required for the promulgation of regulations, so as to permit the promulgation immediately of regulations necessary to meet the situation, such regulations to remain in force until regulations can be promulgated in due course.

Synopsis of bills before last legislature (March 19, 1927):

The Utah State Legislature came to a close, and all medical legislative bills failed in passage with one exception.

House Bill No. 73, a Chiropodist bill, which allowed Chiropodists to treat all ailments of the human foot (ex-

cept amputation of the toes and foot), including such diseases as syphilis, diabetes, arthritis, etc., and other constitutional diseases passed the House. We succeeded in amending this bill in the committee of the Senate so it was not objectionable, but it failed to pass.

House Bill No. 61 also failed. This allowed the State Board of Health to examine institutions where the treatment of the sick was carried on and incurred an examining fee of \$25 and \$5 annually thereafter. Physicians objected to this bill and it was killed in the committee of the Senate.

House Bill No. 130, an Osteopaths' bill, which modified our present law and left out some definitions regarding Osteopaths and drugless healers, was killed in the sifting committee of the Senate after passing the House.

House Bill 122, which amended Section B 3112 of the Industrial Commission Act, which allowed drugless healers to practice as physicians and surgeons, after passing the House, was held up in the sifting committee of the Senate.

House Bill No. 109, which was aimed to abolish the Securities Commission, had behind it a man, who if he had been successful in carrying this bill thus would have established a corporation to treat the sick and bury the dead at so much per month, including an initiation fee.

House Bill No. 122, an Osteopathic bill, which gave Osteopaths the right to practice obstetrics under one license, successfully passed. It also defines Osteopathy. Our present law has been amended in favor of the Osteopath two or three time previous, so that this amendment does no harm. Osteopaths have had the right to practice obstetrics by taking the examination for midwives. This bill passed both House and Senate. It was introduced by Mr. Anderson and written by J. T. Hammond, head of the department of registration, and we finally withdrew our objections to the bill.

To sum up, the legislature this year did not pass any bills in favor of cults. Two or three such bills passed the House but were amended or lost in the sifting committee, or killed in the Senate.

WM. L. RICH.

Report of the Committee on Public Policy and Legislation ordered referred to the Reference Committee.

MEDICAL WELFARE AND ETHICS

As chairman of the Committee on Medical Welfare and Ethics I wish to report as follows:

Three matters have been brought before this committee during the past year.

First, in the case of L. J. Paul vs. W. L. Gardner, in which Doctor Paul claimed that Doctor Gardner was instrumental in having a person who had been committed to the insane asylum released, thereby endangering the professional standing of Doctor Paul, and possibly the lives of his immediate family.

Second, the charges of unprofessional conduct and unskillful practice in the matter of a surgical operation performed upon the wife of William Regar, who brought the action against A. C. Callister.

Third, the matter of investigation of contract practice in the state of Utah, particularly regarding the methods used by certain so-called welfare associations in furnishing medical and surgical service to companies and isolated communities under the management of men who are not physicians and who make a profit out of the acting physician's service.

You have here in your files complete reports of the first two cases.

In the matter of the third, or contract investigation, the doctors who started this action failed entirely to present the evidence which they claimed to have in the case, in fact, when asked to bring the same before the committee they never replied to the letters of request for same, so the matter was dropped because of lack of evidence.

It is recommended that this matter should again be taken up and evidence secured regarding this practice

which is detrimental to the public and a disgrace to the medical profession at large.

S. D. CALONGE.

Report of the Committee on Medical Welfare and Ethics ordered referred to the Reference Committee.

On motion the reception of further reports was discontinued until the next session of the House of Delegates, and the House adjourned to meet at 12 o'clock noon, on Thursday, June 24, 1927.

Thursday, June 24, 1927, 12 Noon

Meeting of the House of Delegates of the Utah State Medical Association.

Meeting called to order; President W. R. Calderwood presiding.

Roll call.

REPORT OF THE COMMITTEE ON NECROLOGY

Reporting deaths that have occurred in our ranks during the past year I have found to be very interesting work. I have found a certain amount of pleasure in coming in contact with widows and children of some of these—our fellow physicians. I find that during the past year eight of our associates have passed from out of our lives.

In Salt Lake County—S. H. Pinkerton, died June 19, 1926; S. H. Allen, died August 30, 1926; R. W. Fisher, died January 16, 1927; W. S. Ellerbeck, died February 17, 1927; W. Benjamin, died April 30, 1927. In Utah County—John J. Steiner, died July 20, 1926. In Weber County—E. M. Conroy, died August 12, 1926; LeRoy Ballentyne, died March 23, 1927.

I have received reports on all of these, with the exception of LeRoy Ballentyne, who was born March 6, 1877, and died March 23, 1927.

S. H. Pinkerton was born May 27, 1857, in New York City, New York, and died at Los Angeles, California, on June 19, 1926, of pernicious anemia.

Dr. Pinkerton was a graduate of the Bellevue Medical School, and held the position of chief surgeon for the Union Pacific Railroad System, at Salt Lake City, Utah.

I wish to say at this time that I have known Doctor Pinkerton for some fifteen years. Doctor Pinkerton was especially interested in the young graduate from school, in the young doctor just starting out. He tried in every way possible to give every assistance to these young men, giving them a start in the field of their profession. He was a very lovable, very congenial man, and one of the best surgeons in the West.

Samuel H. Allen was born August 15, 1862, at Mt. Pleasant, Utah, and died August 20, 1926, at Salt Lake City, Utah, of carcinoma of the head of the pancreas.

Doctor Allen was a graduate of the College of Physicians and Surgeons of Baltimore, Maryland. He was an interne for one year in the Baltimore Lying-in Hospital and was chief surgeon for the Denver, Rio Grande and Western Railway Company from the year 1893 to the year 1901, at Provo, Utah. He was a member of the staff of the Latter Day Saints' Hospital at Salt Lake City from 1904 to 1926, being a charter member and president of that institution. He was also charter member and president of the Intermountain Clinic.

Doctor Allen was a member of the Salt Lake County, and the Utah State Medical Association, a member of the American Medical Association and of the American Society for Study of Goiter.

Doctor Allen was a member of the Church of the Latter Day Saints of Jesus Christ; also a member of the Chamber of Commerce of Salt Lake City, Utah.

I have known Doctor Allen for a great many years; in fact, we were schoolmates at one time in the study of medicine. He was a very hard worker, and was very thorough and conscientious in his work.

R. W. Fisher was born October 10, 1863, on a farm in Sussex County, State of Delaware, and died January 16,

1927, at his home in Salt Lake City, Utah, of pneumonia. Doctor Fisher was a graduate of the Philadelphia College of Pharmacy in 1887, of the Jefferson Medical College in 1890, also covered special courses at Harvard College.

Doctor Fisher was a member of the Salt Lake City Board of Health, was secretary and president of the Salt Lake County Medical Association, and was secretary of the Utah State Board of Medical Examiners, and was also a member of the staff of St. Mark's Hospital, at Salt Lake City, Utah. He filled the chair of Materia Medica and Pharmacy of the medical department of the University of Utah from 1899 to 1914.

He was commissioned captain of the medical reserve corps on June 15, 1917, at Jefferson Barracks, embarked for overseas on October 13, 1918, serving in France and received the rank of major on May 29, 1919.

He was a member of the Methodist Episcopal Church; was grand high priest of the Royal Arch Masons of Utah in 1921, a member of Argenta Lodge No. 3, F. & A. Masons, and a Knight Templar.

Doctor Fisher descended from patriotic stock, and was a member of the Sons of the American Revolution.

He was buried in Mt. Olivet cemetery, Salt Lake City, Utah, January 18, 1927, and is survived by his widow, Margaret F. Fisher, and four children.

W. S. Ellerbeck was born July 29, 1872, at Salt Lake City, Utah, and died February 17, 1927, at Salt Lake City, Utah, of acute dilation of the heart.

Doctor Ellerbeck was a graduate of the University of Pennsylvania, class of 1894.

Doctor Ellerbeck acted as secretary of the Utah State Medical Association, and the Salt Lake County Medical Society during the years 1903 to 1907.

He was a member of the Salt Lake County Society and of the Utah State Medical Association, also of the American Medical Association. He also at one time acted as house physician for the Cathcard Hospital at Devon, Pennsylvania.

Warren Benjamin was born February 5, 1872, at Rondout, Kingston, New York, and died April 30, 1927, at Salt Lake City, Utah, of chronic valvular disease of the heart—endocarditis.

Doctor Benjamin was a graduate of the University of New York and the Bellevue Hospital at New York City.

Doctor Benjamin held the position of chief surgeon for the Denver, Rio Grande and Western Railway Company for twenty-six years. He was also chief surgeon of the United States Fuel Company and the Utah Railway Company for ten years, also chief surgeon for the Order of Railway Trainmen and had other important positions.

He was associated in the Salt Lake County Medical Society, the Utah State Medical Association, a member of the American Medical Society; Fellow of the American College of Surgeons, a member of the Railway Surgeons' Association. Doctor Benjamin also held the privilege of following his profession in the states of New York and Colorado.

He also belonged to the Volunteer Medical Reserve Corps of the United States Army.

Doctor Benjamin was a member of the Baptist Church. He was a prominent lodge man, a member of the Wasatch Lodge, F. & A. M. He was past commander of the Utah Commandery No. 1, Knights Templar; past grand commander, Knights Templar of Utah; past high priest, Chapter No. 1, R. & A. M.; past grand high priest of the R. A. M. of Utah; past master excellent master, R. & S. M. of Utah; past puissant sovereign St. Barnard Conclave No. 24, Red Cross of Constantine; past potentate, Elkalah Temple, Mystic Shrine, and a member of the Mizpah Chapter No. 5 of the O. E. S. of Utah.

Doctor Benjamin was honored and loved by all who knew him, young and old, rich and poor, regardless of color or creed. His life was a life of service.

John J. Steiner was born September 30, 1863, in Germany, and died July 19, 1926, at the Holy Cross Hospital, Salt Lake City, Utah, of abscess of the liver.

Doctor Steiner was a graduate of the St. Louis Medical College; University of Maryland, completed a postgraduate course at the Johns Hopkins University; postgrad-

uate of School of Medicine, Jefferson Medical College.

Doctor Steiner held the position of city physician of Richfield, Utah, and also was at one time county physician for Sevier County, Utah. He was a member of the American Medical Association, the Utah State Medical Association and a member of the American Institute of Homeopathy.

Doctor Steiner was president of the Richfield General Hospital and a member of the Richfield Commercial Club. He was a thirty-second degree Mason, a Shriner and a charter member of the Order of the Eastern Star.

During the World War Doctor Steiner was examining physician of the draft board and a member of the Council of Defense.

Edward M. Conroy was born October 24, 1857, at Conroy, Utah, and died August 13, 1926, at Ogden, Utah, of carcinoma of the pancreas.

Doctor Conroy was a graduate of the University of Iowa and the University of Iowa College of Medicine.

He was a member of the American Medical Association, the Medical Society of Weber County, the Utah State Medical Association. He twice held the presidency of the Weber County Medical Society and was vice-president of the Utah State Medical Association at the time of his death.

In medical military positions Dr. Conroy was a member of the Volunteer Medical Service Corps. He was chairman of the National Council of Defense at Ogden, Utah, during the World War. He was also chairman of the Weber County Fuel Administration of the United States Fuel Administration during the war; was a member of the United States Public Health Service.

Doctor Conroy was elected and served as mayor of Ogden City, Utah, from 1906 to 1908, and prior to that office was a member of the city council of Ogden, and on the school board of Ogden, Utah. He was also a director of the National Bank of Commerce, Ogden, Utah.

Doctor Conroy was a member of the Dee Hospital Association and on the executive staff of that hospital. Up to the time of his death he was the only male member of the Dee Hospital Alumnae Association, of which he was an honorary member.

He was of the Roman Catholic faith and was affiliated with the Benevolent and Protective Order of Elks, the Woodmen of America, Modern Workmen of America, Woodmen of the World, Neighbors of Woodcraft, and belonged to the Weber Club of Ogden, Utah.

In conclusion I wish to say that the one thing that has been very forcibly impressed upon me in connection with this work, and that is the duty that comes to us when one of our members is stricken in sorrow or sickness. I have heard from the wives and families of our medical brethren who have died, some very lovely expressions of gratitude for the sympathy and friendship which we have expressed to them in the way of letters, flowers, inquiries and calls. This has always been very consoling to the bereaved.

"So long as we love, we serve, and no man is useless while he has a friend, and the number of friends he has is a fair indication of the man."

Another thing that has come strongly to me is that as physicians we should encourage periodic health examinations and that we should submit ourselves for periodical examinations. I think this is very essential and necessary in order that we might be warned of dangers that gradually come upon us, and in conclusion I may briefly state:

1. Life insurance experience and statistical records offer the clinician a valuable source of information concerning the effect on mortality of common minor defects of structure and function which are commonly overlooked.

2. The organization and resources of the institution of life insurance in co-operation with the medical profession constitute a tremendous potential force for the promotion of public welfare.

3. The great advances in medical science of late have been in the field of preventive medicine, but have dealt largely with definite well organized diseases.

4. The present problem which confronts us in the recognition and correction of those insidious degenerative

processes which are prevalent in middle and advanced age.

5. That the only way to detect these defects in time to correct them is by periodical physical examinations of those supposedly well.

E. G. GOWANS,
Chairman.

On motion the report of the Committee on Necrology was ordered referred to the Reference Committee.

REPORT OF THE COMMITTEE ON HEALTH ACTIVITIES

We, your committee, were appointed to investigate the health situation of this state in respect to:

First: The policy, plans and purposes of the State Board of Health.

Second: The policy, plans and purposes of the various other health agencies within the state.

The object being, to find—if possible—the cause or causes of contention, or incoordination, that is so rampant throughout the health activities within this state. Further, to see if there is a reason why there cannot be complete cooperation of all state agencies conducting health work within this state, so that the medical fraternity can support the health activities or policies of this state.

There has been much effort expended by the governor and by different organizations to bring about harmony and to establish a policy that could be supported by all interested in public health matters. Notwithstanding all this, the conditions still maintain.

After some months of investigation, we, your committee, respectfully submit the following report:

First: The policy of the State Board of Health is undoubtedly excellent, it being similar to the best in the United States.

Second: The methods, the ways and means of carrying out these policies are in a measure inadequate, due perhaps to insufficient state appropriations, but to a much greater extent, to the sad failure of cooperation.

Very little need be said concerning the first cause, as this is a matter of the legislative body of the state, except this: We recommend that the State Medical Society support any needed state appropriation that will enable the State Board of Health to carry out its policies as far as possible.

There could be much stated concerning the second cause, but we deem it unnecessary. Suffice it to say, there is, and has been for a long time, a feeling within these various agencies that the State Board of Health, its personnel—perhaps—had no authority, or assumed an unwonted dictatorial attitude toward these agencies, or that the State Board of Health felt its work was being hampered and belittled by these agencies over the state to the point that it has been almost impossible to carry out the policy of the State Board of Health.

However, some of these difficulties have been lately removed and there is a sighted solution.

The Health Unit plan, as proposed by the State Board of Health is similar to the very best plans which are being carried out successfully in many of the states, and this plan, we feel, is as well adapted to this state as to any state in the Union.

Wherefore, as the powers and duties of the State Board of Health, according to statute are definitely stated, that they shall cooperate, supervise and make regulations not contrary to law, as may be deemed necessary for the preservation of public health, we feel that all health agencies actively engaged in health problems should cooperate with the State Board of Health. That when this does not maintain, some not uncertain step should be taken to compel, if necessary, this cooperation.

Further, that no matter what the difficulties, be they personalities, members of boards or agencies, or what not—they should be adjusted or revised for the betterment of the public.

Therefore we wish to suggest a Health Council be appointed or elected by the House of Delegates, consisting of three members from the State Medical Society, these

three to select two lay members, and that they be authorized to act:

First: In a conciliatory and advisory capacity in all health problems.

Second: To be active in public health education throughout the state; so that we as a medical society can support wholeheartedly the health policy of this state.

F. D. SPENCER,
F. LEAVER STAUFFER,
D. E. SMITH,
Chairman.

Report of the Committee on Health Activities referred to the Reference Committee.

REPORT OF THE ADVISORY COMMITTEE OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF UTAH

As chairman of this committee, together with the other members of the committee, we have maintained a close relationship, so that in case anything should come up they could give it their attention. I wish to invite attention to two things: One is the establishing of a scholarship for poor boys. Under the present conditions it is very expensive to complete a medical education. Second, it should be made possible for Utah to complete the education of its own doctors. Students finish their education elsewhere and then come back to Utah. The subject of a medical school for Utah is going to come up pretty soon; it has been talked about and discussed pro and con, for as many years as I have been in Utah—in fact, I have talked some myself. This is a problem that will have to be met, and I recommend that we get ready and be prepared to handle the subject when it comes up in earnest.

H. P. KIRTLEY,
Chairman.

Report referred to the Reference Committee.

REPORT OF THE REFERENCE COMMITTEE

It was moved and carried that the report of the Reference Committee be considered by subjects.

Report of the Council—The Council suggests that we adopt the constitution and by-laws suggested by the A. M. A., and I think that with modifications this should be done. The A. M. A. has given this considerable attention and is in a better position to say what should constitute the constitution and by-laws than we are, and I think this suggestion of the Council should receive serious consideration.

The Council suggests that the Committee on Arrangements should be better organized, that an effort should be made to have this committee more thoroughly organized and systematic program outlined for the entertainment of guests of the Association. Last year I heard a scathing arraignment of the absolute inhospitality and our failure to treat guests as they should be treated. I have no idea who is at fault, but I feel that we have made grievous mistakes. This year another guest came and made remarks that he would not stay throughout the meetings and seriously doubted whether he should come back because of his treatment. My suggestion is that it be found out who the guests are we are about to ask here, and a definite program for entertainment of these guests worked out in advance.

After considerable discussion the consideration of the proposed constitution and by-laws was made the special order of business for 1 o'clock on June 25.

Report of the Treasurer—The recommendation of the Reference Committee that the dues be reduced \$1.00, was on motion, not approved.

Report of the Committee on Public Health Activities—This report is from the committee that have the investigation of the health situation in this state. This is a very sensible report and there are good recommendations in it. I think it deserves very careful attention. I think it would be well to retain this committee.

This Reference Committee also suggests that as far as possible these committees should be selected from the House of Delegates so that the House would know something about what is being acted upon. None of the men

on this Health Committee are here to hear this excellent report.

Motion made and carried that the President appoint a Health Council to consist of three members, and that this Council have the authority to advise with lay committees as the occasion may arise.

Report on Public Policy and Legislation—This is a good report and has a number of very good recommendations.

The recommendation of the Reference Committee that the report of the Committee on Public Policy and Legislation be adopted, on motion carried unanimously.

Report of the Committee on Medical Welfare and Ethics—Recommendation of the Reference Committee that this report be adopted, on motion carried unanimously.

Report of the Delegate to the House of Delegates of the A. M. A.—I have now before me a report from the Delegate to the House of Delegates of the American Medical Association. This may be slightly out of order, but in this report is a paragraph I think ought to be specially called to your attention, and that is this: For every 100,000 persons in the United States there are 133 physicians; Great Britain has 92, Switzerland has 77, Japan has 75 and France has 35 and Sweden, 28.

I am quite sure that the problem of four years medical school is going to come up for our consideration; this has been under discussion for a long time. It is my private opinion that two years ought to be cut out, instead of two more added. We cannot afford at the present time to maintain a four years' medical school in this state with the limited funds; therefore, the thing to do is to wipe the medical school off the board, rather than add anything to it. I know something about this school, have had something to do with it for probably twelve years. I know this may be out of order.

W. R. TYNDALE,
Chairman.

CHAIRMAN: This completes the report of the Reference Committee. Any other business to come before the House?

DOCTOR MORRELL: Within the last two years there has been a condition in the state which has caused a good deal of comment in certain quarters, and which I think should be considered at this time. The Utah statute makes it very attractive for the filing of personal injury suits against corporations, and because of this there have been a large number of cases brought from outside states.

Under the statutes as they now read, the testimony of a doctor who has treated the patient can be barred. If x-ray pictures have been taken showing injuries, the testimony of the consultant can be barred. This renders the defendant practically helpless in defending himself in this particular class of suits and causes a great deal of trouble. It is my belief that something ought to be done in the way of limiting the number of suits against corporations and the filing of claims against physicians. It has been further charged that the medical association has always taken adverse action when any question of general good has been brought up in the legislature. In this connection I have a resolution to offer:

"Be It Resolved: That, Whereas, under the present state of the law in the state of Utah it is impossible for courts or investigating bodies to be given the true facts with relation to injuries or claimed injuries of persons suing or claiming the right to recover for such injuries; and,

Whereas, it appears that it is to the best interests of the profession and of society in general that courts and investigating bodies should have the real facts from those best qualified to present them:

Now, Therefore, Be It Resolved, that the House of Delegates of the Utah State Medical Association formally express itself as being opposed to the present system, whereby the laws of the state prevent the presentation of the true facts concerning alleged personal injuries and foster the concealment of the truth in such cases;

And Be It Further Resolved, that it is the sense and purpose of the House of Delegates to further and promote such bill or bills as may be presented to the next

legislature of the state of Utah to correct and remove such evil.

After discussion the report was referred to the Reference Committee.

On motion duly made, seconded and carried, the meeting was adjourned until 12 o'clock noon, Saturday, June 25, 1927.

Saturday, 12 o'Clock, Noon

Meeting called to order; W. R. Calderwood, presiding. Roll call.

Reading of minutes of two previous days' meetings by the Secretary.

Minutes approved.

SECRETARY: I have here the report of the Reference Committee, on the resolution introduced yesterday by Dr. Morrell.

CHAIRMAN: Please read the report.

"House of Delegates.

"Gentlemen:

"Your Reference Committee recommends that the resolution be referred to the Committee on Public Policy and Legislation for their consideration and report to the House of Delegates at their next annual session. The State Legislature does not meet again for two years, and therefore no change in the present law can be made for two years. Moreover, it is possible that after due consultation with non-biased members of the legal profession, the Committee on Public Policy and Legislation might make some changes in this resolution.

"W. R. TYNDALE,
"Chairman, Reference Committee."

It was moved and carried that the report of the Reference Committee on the resolution of Dr. Morrell, be referred to the Committee on Public Policy and Legislation.

CHAIRMAN: The special order of business at this time is the election of officers for the ensuing year.

Nominations for President-elect are in order.

William D. Donohoe nominated by E. F. Root; nomination seconded by Ralph Pendleton, J. J. Galligan and E. D. LeCompte; moved by Sol G. Kahn that the nominations be closed and the Secretary be instructed to cast the vote of the House of Delegates for Doctor Donohoe for President-elect; carried.

The chairman announced that nominations for First Vice-President were in order.

Joseph R. Morrell nominated R. F. Draper; nomination seconded by Doctor Landerberger; moved by Doctor Tanner that the nominations be closed and the Secretary be instructed to cast the vote of the House of Delegates for R. F. Draper for First Vice-President; carried.

The chairman announced that nominations for Second Vice-President were in order.

George Anderson was nominated by Joseph Hughes; moved by W. Beers that the nominations be closed and the Secretary be instructed to cast the vote of the House of Delegates for George Anderson as Second Vice-President; carried.

The chairman announced that nominations for Third Vice-President were in order.

Joseph E. Jack nominated A. D. Cooley; moved by W. Beers that the nominations be closed, the rules be suspended, and the Secretary be instructed to cast the vote of the House of Delegates for A. D. Cooley as Third Vice-President; carried.

The chairman announced that nominations for Treasurer were in order.

J. C. Landenberger nominated E. D. LeCompte for Treasurer; moved by Doctor Goeltz that the nominations be closed, the rules suspended, and the Secretary be instructed to cast the vote of the House of Delegates for E. D. LeCompte as Treasurer; carried.

Chairman announced that nominations for Councilor from the Second District were in order.

Doctor Goeltz nominated J. C. Landenberger; moved by Doctor Critchlow that the nominations be closed, the

rules be suspended and the Secretary be instructed to cast the vote of the House of Delegates for J. C. Landenberger as Councilor from the Second District; carried.

Chairman announced that nominations for Councilor from the Third District were in order.

Joseph R. Hughes was nominated, and it was then moved by Doctor Tanner that the nominations be closed, the rules be suspended and the Secretary be instructed to cast the vote of the House of Delegates for Joseph R. Hughes as Councilor from the Third District; carried.

The next order of business was the selection of the place for the next annual meeting. A. Z. Tanner and Doctor Morrell issued an invitation for the Association to hold its next annual meeting in Ogden, Utah. On motion the invitation accepted unanimously.

On motion of Doctor Neher, Council was authorized to order from the American Medical Association and place in the hands of each member of this Association a copy of the Manual on Periodic Examination of the Apparently Well.

There followed an informal discussion concerning the funds of the Association, and a motion was made by Sol Kahn that the Council be authorized to invest such amount as in their judgment could be spared from the current funds in any manner which in their best judgment would be for the benefit of the Association. Carried.

CHAIRMAN: The special order of business before the House at this time is the consideration of the proposed constitution and by-laws; what is your pleasure?

Dr. Landenberger moved the proposed constitution and by-laws be read in general session prior to the close of this annual meeting, and the Secretary be instructed to send copies to each of the component societies and that the question be considered at the next annual meeting of the Association. Motion carried.

At this time the president-elect, William D. Donohar, was introduced. In a gracious manner he expressed his appreciation of the honor conferred and pledged his untiring efforts toward a successful administration.

ADJOURNED SINE DIE.

F. B. STEELE,
Secretary.

Minutes of the Salt Lake County Medical Society, Salt Lake City—The regular meeting of the Salt Lake County Medical Society was held in the assembly room, Medical Arts Building, Monday, June 13, 1927.

Meeting was called to order at 8:10 p. m. Forty-two members and four visitors were present.

Minutes of the previous meeting were read and accepted without correction.

It was the wish of the society that a moving picture put on by the Fleischmann Yeast Company be presented. The picture was then shown.

W. R. Tyndale reported for the Library Committee. He moved that the proposed amendment to the By-Laws be changed to read as follows:

"It is hereby moved that Section 2, Chapter 5, of the By-Laws of the Salt Lake County Medical Society be changed, effective January 1, 1928, to read as follows:

"The annual dues shall be \$15.00 and shall be payable on January 1 of each year. Members not having paid by February 1 of each year shall be considered delinquent and their dues shall be automatically raised to \$17.00. Executive Committee shall authorize expenditure of the money.

"Any member who shall fail to pay his annual dues by April 1 shall be held suspended without action on the part of the society. A member suspended for nonpayment of dues shall be restored to full membership on payment of all indebtedness. Members more than one year in arrears shall be dropped from the roll of members."

Seconded by A. C. Callister. Discussed by: H. T. Anderson, F. B. Steele and W. F. Beer. H. T. Andrews moved that the amendment be amended so that the

increase in dues could only be used by the Library. No second.

W. L. Rich reported for the Community Clinic Committee.

J. P. Kerby reported for the Committee on Public Health and Legislation.

The secretary reported for J. U. Giesy, chairman of the Committee on Necrology.

F. A. Goeltz discussed the activities of the Boy Scouts and plans for their instruction and requested the members of the society to examine some deserving Boy Scouts free of charge. He moved that a permanent committee be appointed to be known as the Boy Scout Committee of the Salt Lake County Medical Society, this committee to devote its time to the physical welfare of the Boy Scouts. Seconded and carried.

The chair appointed the following men on this committee:

L. J. Paul, chairman; W. A. Pettit, Ralph Pendleton.

John Z. Brown announced plans for the state meetings.

J. A. Phipps spoke of the postgraduate course and urged the support of same.

P. V. Jameson was unanimously elected a member of the society, thirty-one members voting.

Adjournment at 9:20 p. m., after which refreshments were served and an informal smoker was held.

M. M. CRITCHLOW, *Secretary.*

At the close of the Northwest Medical Convention at Boise, Dr. E. F. Root of Salt Lake automatically became president. Dr. E. R. Dumke of Ogden was elected as councillor from Utah. Quite a number of the Utah state members visited the convention.

Special Course for General Practitioners in Physical Therapy—The Stanford Medical School announces to the physicians in California that Frank B. Granger, M. D., of Boston, Massachusetts, will conduct a one-week course in physical therapy from September 26 to 30, 1927.

This course will afford the physicians an opportunity to obtain, under ethical conditions and without any commercial connections, the latest and most authoritative developments of this branch of the therapeutic art from a recognized expert in this medical field.

Doctor Granger was director of physical therapy in the United States army during the World War. At the present time he is physician-in-chief of the Department of Physical Therapeutics at the Boston City Hospital. Besides being instructor in physical therapeutics at the Harvard Medical School, and lecturer on the same subject at the Tufts Medical School, he is consultant to a number of hospitals, including the Boston Floating Hospital. He is a member of the Medical Council of the United States Veterans' Bureau and the Council of Physical Therapy of the American Medical Association.

The course will consist of lectures, demonstrations, the illustrative use of apparatus, and such clinics as can be fitted into the program. Special attention will be given to electrotherapy and the theoretical and practical application of such modalities as the galvanic, sinusoidal, faradic, static current, medical and surgical diathermy and the use of the ultra-violet ray.

It is proposed to devote each morning from 10 on, and each afternoon from 2 o'clock on, to the work of this course. The lectures and demonstrations will be conducted in Lane Hall, Stanford Medical School Building.

The course will be strictly limited to properly qualified licensed physicians and surgeons. A nominal fee of \$10 will be charged for this course. On payment of the fee physicians will receive a card of admission to the lecture room in which the course is conducted.

Registration for the full course will be received at the dean's office, Stanford Medical School, on or before noon, September 20. Requests for information or remittances to cover advance registration should be addressed to The Dean, Stanford Medical School, 2398 Sacramento Street, San Francisco. A check for advance registration should be accompanied by the physician's name and home address, the medical school from which he graduated, and the year of graduation.

MISCELLANY

COMMENT ON CURRENT ARTICLES

From time to time articles and items are printed in this journal which would seem worthy of special comment or, at least, to which the attention of readers might be called. That thought is what inspires the inauguration of this column, which, as occasion indicates, will make its appearance in this department of California and Western Medicine.

The July issue of CALIFORNIA AND WESTERN MEDICINE contained a number of articles on special phases of medical science and progress that were of more than usual interest. It is hoped that most of these contributions, from California and Eastern colleagues were of sufficient interest to induce perusal by many of our readers.

Such comment as will be here made will deal with only three of these articles. The papers referred to were read at the Los Angeles session of the California Medical Association, two being by guest speakers, and the third being a contribution from a lay contributor. The authors of the three articles were: Surgeon General Hugh S. Cumming of the United States Public Health Service, Professor William W. Campbell, president of the University of California; and Professor William B. Munro of Harvard University, Cambridge.

When the papers mentioned are read, one senses how these three men in many ways agreed on certain fundamental problems in medical education and practice and public health work. Each paper was complete in itself, and yet each in one sense makes an admirable corollary to the others.

Surgeon General Cumming's paper on "Public Health and the Public Health Service" comes to us at a most opportune time. Doctor Cumming, in his closing paragraphs, pointed out how important it is that private physicians—those who are engaged in the practice of clinical medicine—should have a proper understanding of the responsibilities and work of sanitarians and public health officials. As stated by him, our lay citizens are very much interested in so-called preventive medicine, and it is extremely important that practitioners engaged in clinical medicine shall not be prejudiced against or thwart proper public health activities. In an equal measure it is important that sanitarians and public health workers should not unnecessarily or without very special reasons carry phases of their work into the domains of clinical medicine.

* * *

It seems strange that our national public health service should be the outgrowth of an effort, by which our forebears in 1798 attempted to care for injured and sick seamen in our marine service. Perhaps this was in part due, because at that time the responsibility of the care of the sick and injured had not developed as part of a community consciousness, so that local seaport communities were unwilling to accept sick or injured seamen not resident in their own districts. To meet this condition, the government had to step in and help these unfortunates. The name Marine Hospital Service, to which later on the Public Health Service attachment was made, continued from 1798 until 1912, when the "marine hospital" portion of the name was eliminated from this important department; which thrives, strange to say, under the treasury department of the United States government. Fortunately, it is doing splendid work under that department, just as the department of the interior is likewise doing important public health service in efficient manner, as was commented on in the July issue.

In good time, however, it would seem only rational

and logical that so important a phase of the nation's welfare as the health and efficiency of its citizens, should be dignified by a department of its own in the cabinet of the president of the United States. With the rapidly developing consciousness of the people on matters of social and health welfare, it cannot be many years before other than purely material interests of our country will be dignified by separate cabinet departments in the executive branch of our government. It is to be hoped that day is not far distant.

* * *

When it is bluntly stated, it seems a somewhat shocking commentary upon the more than nineteen hundred years of Christian civilization, that the world should have witnessed more progress in the elimination of disease, the preservation of health and the prolongation of life, in less than the last one hundred years, than in all the preceding centuries. And yet such are the facts. As Doctor Cumming indicated, the modern public health movement may be said to have its real basis in those investigations which were made in England about 1850, and which had to do particularly with the conditions of wage-earners and their environments.

Should it not also give Golden State citizens a certain amount of astonishment, well akin to a shock, to know that when California formed its board of health in 1871, that the California State Board of Health was the third of such boards to come into existence among the commonwealths comprising the United States of America? In that connection, California has other pioneer public health work of which it may be proud, but on those matters comment will be reserved for some future time.

* * *

Doctor Cumming gave as his definition, formulated to cover the scope of modern public health, that which had been proposed by Professor C. E. A. Winslow, concerning whose recent course of lectures in Los Angeles, editorial comment is also made in this issue.

It is gratifying for all citizens, but for physicians especially, to know that the United States Public Health Service has a very front rank among international agencies of its type, and that so keen and able a judge as Dr. William H. Welch, is sponsor for such an opinion.

Private physicians, who are the practitioners of clinical medicine as contrasted to public health practitioners, should and do appreciate the significance of the facts, that today the diseases which interfere with a still further prolongation of human life, are particularly the degenerative diseases and the respiratory infections of adults and of advancing life, diseases whose origin and course are often intimately associated with defects in our social fabric, and which will therefore be somewhat difficult and slow to eliminate.

Professor Winslow, in one of his Los Angeles lectures pointed out that in the period 1894 to 1924, New York state showed the following remarkable decrease in communicable diseases:

Disease	Percentage of Decrease
Scarlet Fever	99%
Diphtheria	95%
Nervous System	85%
Tuberculosis	79%
Respiratory	53%

During the same period, in New York State, there was an increase as follows:

Disease	Percentage of Increase
Cancer	156%
Heart Disease	187%
Arterial and Circulatory Diseases	650%

In that lecture, Professor Winslow gave statistics for California for the year 1925 as follows:

Circulatory	11,262 deaths
Nervous	6,129
Cancer	5,278
Tuberculosis	5,186

(This is one of California's major problems.)

Accidents	4,558
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(It is interesting to note how very high is this figure.)

Pneumonia	3,624
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(This is a remarkably low rate of deaths from pneumonia—due, no doubt, to California's climate.)

Suicide	1,109
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(This is very high, and suggests attention.)

It is interesting to note that whooping cough is the only disease which was listed in a list of some twenty communicable diseases which, in 1925, caused more than 450 deaths. Diphtheria, scarlet fever, etc., have all disappeared below this figure.

* * *

When Surgeon General Cumming said:

"This separation of curative and preventive medicine was an error. We are coming more and more to recognize the unity of medicine and more and more to see that if we are to achieve the desired results, all departments of medicine must co-operate to the one end, which is the prevention of disease and the promotion of health. The separation which has existed between curative and preventive medicine is sound neither in theory nor in practice," he made statements which are worthy of most serious thought.

Prejudicial opinions and conclusions will not help the situation. What is needed is clear knowledge of facts, logical conclusions and constructive thinking and planning for the future. If these public health and clinical medicine problems are approached in that spirit, the world will become a better world to live in, and regular medicine, both for its private practitioner disciples and its public health official representatives, will have occasion for greater pride in a noble calling, than ever.

Let us turn, now, and hear what an educator who has made a notable name for himself in the field of astronomy, and as the administrator of the largest state university in America, has to say on the "Education of Physicians."

If there is one major thought running through President Campbell's address, it is that collegiate and professional education fails if it does not give to the students the capacity to think independently of teachers and of books.

Professor Campbell's charge that practically 90 per cent of the people of our great country have a very distorted notion of what is a college, is startling, and yet observation cannot help but make most of us concur in his viewpoint.

When President Campbell said that "physicians must deal pleasingly and successfully with people," he only emphasized that the art and the science of medicine must ever go hand in hand, if a doctor is to do his work to best advantage.

The high cost of present day living is certainly met by the high cost of education, for, as Doctor Campbell states, in some institutions it costs something like ten thousand dollars to carry a single student through to his degree as a doctor of medicine, "not counting the sacrifices of time and money and earning power which the students themselves will have made." And after this education and training is acquired, the young doctor must go out and meet in every day practice, the cultist exponents, with little education and training, upon whom the state has placed the dignity of licensure.

* * *

Those members of our profession who meet from time to time to discuss curricula and lay down in somewhat dogmatic fashion that this particular subject must have so many hours, and that subject, so many more, and so

on, can well ponder over Doctor Campbell's assertion: "The conscientious students do not have enough time to reflect upon their work, not enough time to think of what it is all about; and the non-serious students have too much of their work done for them by the professors."

What is said in Doctor Campbell's address concerning the atmosphere of scholarship has admirable support in Professor Munro's comments on the life work of the late Lord Lister and the late Sir William Osler.

* * *

President Campbell's statement that "personal responsibility is the greatest educator there is" will find hearty support from hundreds of medical men who laid the foundations of successful practice not in the medical schools from which they graduated, but in their early environments as practicing physicians, where they were forced to meet obstacles of such nature, that only through their own study and efforts in the school of hard knocks were they able to become successful physicians. It was experiences in such environments which made the success of many doctors in California, whose names and achievements have shed luster on our profession and on our California Medical Association, in our own and in earlier days.

No two Anglo-Saxon names could be mentioned in the whole realm of medicine toward which a kindlier spirit and reverence exists, than those of Lister and Osler. The California medical profession is indebted to a layman, Professor William B. Munro of Harvard, for a most admirable character study of these two men, who in their day and generation were outstanding torchbearers in medical progress; and whose spirit, because of the magnitude of their achievements, still animates the profession to strive for the ideals promulgated by them, and which are now the possession of the entire profession.

* * *

Just as Doctor Cumming emphasized the public health conditions existing in Great Britain along about 1850, so did Professor Munro call attention to the deplorable state of scientific medicine at that time, when in the hospitals of Great Britain practically two out of every five injured workmen died, often from minor injuries.

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The part: which van Leuwenhoek, discoverer of the microscope; Pasteur's later utilization of that instrument to establish the "fact that decay and fermentation result from microorganisms; Lord Lister's application of Pasteur's discovery in showing the rôle of pathogenic bacteria in the human organism, all played in the foundation of modern day prevention of diseases, was graphically told.

The reference to malaria in the swamps about Rome, and the fact that human beings failed to put two and two together in that particular problem, just as the Romans and others were unable to understand that the coins they made were practically printing blocks and that more than one thousand years were needed before these thoughts were put together and demonstrated, was an admirable way in calling proud man's attention to some of his mental obtuseness.

* * *

Professor Munro's presentation of the work of Lister and Osler fits in with President Campbell's similar viewpoint on the essence of real education, as witness Professor Munro's statement: "The two were alike in possessing minds of the inquiring type, and both acquired a fine, broad background of cultural education in addition to the more specialized professional training."

* * *

The concluding paragraph of Professor Munro's address opened with this sentence:

"The advance that has been made in medicine and in surgery, in hygiene and in sanitation, in protecting the public health, in controlling the major routes of infection, and in building up the physical vigor of the people—this advance has been one of the mightiest achievements of modern civilization, quite worthy to be ranked with things that border on the miraculous."

The above thought was a worthy basis upon which to make the plea that with "the immense wealth of the

United States, the amount of money devoted to research in the field of public health is pitifully small."

* * *

To those of our members who have not yet taken the time to read these three articles, from which quotations have been taken, and upon which comments have been made, we suggest that there is a real treat in store. There be none among us who cannot advantageously read and reflect on what Dr. Hugh S. Cumming, President William Wallace Campbell and Professor William B. Munro had to say to us in the papers which were printed in the July issue of CALIFORNIA AND WESTERN MEDICINE.

NEWS

Rockefeller Foundation—The Rockefeller Foundation has elected to its board of trustees Herbert S. Hadley, chancellor of Washington University, St. Louis; Dr. David L. Edsall, dean of the Medical School of Harvard University, and Dr. George H. Whipple, dean of the School of Medicine and Dentistry, University of Rochester.—*Science*.

California's Eugenic Sterilization—A study of the workings of the California eugenic sterilization law is being made, according to *Science*, by E. S. Gosney, a Pasadena philanthropist.

More than 5000 operations have been performed in the state institutions, under this law, during eighteen years, and it is the intention to analyze the effects from all points of view and make the facts public. The investigation has been in progress since the beginning of 1926, and seven papers have already been prepared for publication. The technical side of the undertaking is in the hands of Paul Popenoe, and the work is supervised by an advisory committee consisting of Dr. J. H. McBride, Dr. George Dock, Henry M. Robinson, Otis H. Castle and Paul Popenoe, of Pasadena; Chancellor David Starr Jordan and Professor L. M. Terman of Stanford University; S. J. Holmes, of the University of California. The Los Angeles Obstetrical Society has taken up, at Mr. Gosney's instigation, a parallel study of the operations for sterilization performed in private practice.—*Boston M. & S. J.*

Dr. R. V. Brokaw Appointed Field Representative—The appointment of Dr. Raymond Voorhees Brokaw as Field Representative of the American Society for the Control of Cancer has been announced. Doctor Brokaw resigned his position as Superintendent of Health of Springfield, Illinois, and took up his new work on June 6.

Dr. Brokaw is a native of New York City, attended Wesleyan University and graduated from the College of Physicians and Surgeons, Columbia University. He brings to the society broad experience in public health work both in this country and abroad.

As Field Representative his duties will take him throughout the United States, where he will meet state chairmen and other persons engaged in carrying on the campaign for the control of cancer. He will act as liaison officer to carry information to collect it.

Doctor Brokaw takes the position left vacant by the resignation of Dr. William F. Wild, who, during his twenty-nine months with the society, visited every state in the Union, consulting state chairmen and other medical men, as well as dentists, nurses and leaders in public health work in the United States.—*Campaign Notes of the American Society for the Control of Cancer*.

Canada's Red Cross Seaport Nurseries—At Quebec, Halifax, and St. John the Canadian Red Cross is maintaining seaport nurseries for immigrant mothers and children. During the past six years these nurseries have given aid to 85,000 women and children, and last year over 5000 follow-up cards in thirteen different languages were sent to the Red Cross chapters in the districts to

which the families were going.—United States Department of Labor, Children's Bureau.

While More Than 1,000,000 Dairy Cattle, out of 30,000,000 head tested for tuberculosis, have been destroyed, the industry is in better condition today than it was ten years ago, when the campaign against the disease was inaugurated. Such was the opinion expressed by Dr. John R. Mohler, chief of the Bureau of Animal Industry, United States Department of Agriculture, at the recent Eastern States Tuberculosis Conference.

Fear expressed by many people in the beginning that the campaign would turn the public taste against milk consumption has proved to be unfounded, according to Doctor Mohler. On the other hand, he said, the annual consumption of milk in the United States has increased more than forty-nine quarts per capita since 1918. During 1926 the public consumed 56,000,000,000 pounds of milk and cream, an increase of 2,000,000,000 pounds over the quantity consumed in 1925.

Doctor Kiernan urged the continuance of the accredited-herd plan. At a very slight cost each year to the livestock owner the annual test may be made, he said, and if the herd is shown to be free, the certificate of accreditation may be extended for another twelve months. The total number of accredited herds on June 1, 1927, was 126,557, and the once-tested-free herds, 1,498,820.—United States Department of Agriculture.

A New Art School for Negro Students—Roland Hayes, the celebrated Negro singer, has recently acquired 600 acres near Calhoun, Ga., where he was born, which is to be used as the site for a school where talented and ambitious Negro students may receive training in the arts. The school is intended as a memorial to his mother.—United States Department of Labor, Children's Bureau.

Keep Watch for Poliomyelitis Cases—June has brought to California an increased number of cases of poliomyelitis. The situation, so far, is not alarming but conditions indicate that we shall have more cases of this disease during the coming summer and fall months than were present during the same period of last year. Health officers are requested to keep a sharp outlook for cases that may be poliomyelitis and to institute isolation without delay. Prevention of contact with suspected cases is the only available method of control that we have. The following table indicates the relative prevalence of the disease in California, by months, since 1923:

	POLIOMYELITIS				
	1923	1924	1925	1926	1927
January	3	8	17	8	13
February	3	4	14	14	9
March	1	9	11	13	7
April	2	4	29	10	7
May	7	1	36	11	20
June	5	4	79	16	54
July	8	10	204	17 to 6/29	....
August	23	9	200	18	....
September	40	17	105	35	....
October	91	51	51	13	....
November	39	39	51	17	....
December	29	36	24	15	....
Totals	251	192	821	187	....

—California State Board of Health Weekly Bulletin.

Harvard Medical School Establishes Loan Fund—The *Boston Medical and Surgical Journal* notes that the Medical School of Harvard University, beginning with those entering in 1927, has increased its tuition to \$400 a year, and coincidentally will provide a loan fund from which students who enter in that year or thereafter may borrow. Loans will be made to students in the second, third and fourth year classes, and occasionally to men in the second half of the first year, but in all cases to those whose records have been sufficiently creditable to make it probable that they will remain in the school. Beginning this year, all applicants for admission to the

school living within fifty miles of Boston will be required to have a personal interview with the assistant dean or a member of the committee on admission.—National Board of Medical Examiners' Bulletin.

Doctor Sands Honored—Dr. Jane Sands, D. N. B., '20, a graduate of the Woman's Medical College of Pennsylvania and now a member of its faculty, was awarded the Sarah Berliner Research and Lecture Scholarship, March 6, at the biennial meeting of the American Association of University Women in Washington. This is one of the highest honors open to women in research.—National Board of Medical Examiners' Bulletin.

C. H. Hittenberger Company Moves to New Quarters—Thirteen years ago, at 23 McAllister Street, Mr. C. H. Hittenberger laid the foundation of a business that, since, has won for him an enviable reputation among the profession, not alone of this state, but throughout the country. How well the foundation was laid is shown in the consistent growth of this business from a "one man" shop to an organization now occupying two stores and a factory where thirty employees are constantly kept busy at their various tasks. The removal of their Market Street store, formerly at 1103 Market Street, to new and larger quarters at 1115 Market Street is another step which denotes the growth of this progressive company.

New American Medical Directory—For more than twenty years the American Medical Association has been publishing a directory of the medical profession. Ten editions have appeared, the last one (1927) being just off the press.

The first edition (1906) contained 128,171 names of physicians in the United States, its dependencies and Canada. The new tenth edition includes 164,002 names. There is an increase of 2644 over the previous edition. If the directory were merely a list of names and addresses of physicians it would not have great significance. That information is valuable, but of far greater value is the fact that the directory gives proof of the right of each physician listed to practice medicine—namely, time and place of graduation and year of license. In addition, society membership, specialty and office hours are included. Capital letters indicate those who are members of their county medical society, and a special symbol follows the names of those who are Fellows of the American Medical Association.

The information concerning hospitals and sanitariums of the United States is another valuable and extensive feature. Descriptive data appears following the names of 7816 hospitals and sanitariums such as type of patients handled, capacity and name of superintendent or director.

The list of physicians in each state is preceded by a digest of the laws governing medical practice in that state; members of licensing board, state board of health, names of city, county and district health officers, officers of constituent state associations and component county and district medical societies. The book, in short, is one vast source of reliable data concerning the personnel of the medical profession and the institutions and activities closely related to it. It contains 2575 pages and is sold for \$15.00. Published by the American Medical Association, 535 North Dearborn Street, Chicago.

Hopkins Adopts Quarter System—A new curriculum will become effective in part next year and in full the following year at Johns Hopkins University Medical Department, arranged on the basis of four quarters of eight weeks each for the academic year. Required work will be confined to a minimum in each major department, with an aggregate of 2600 hours of instruction in the required courses, leaving about half the student's time for courses of his own selection. Term examinations will be discontinued next fall and group examinations substituted. Examinations in the preclinical studies will be held at the end of the second year and in the clinical subjects at the end of the fourth year; they will be along more comprehensive lines than the present detailed type of examinations.—National Board of Medical Examiners' Bulletin.

There is a common saying that "a doctor is not a good business man." This is true to a certain degree. And why? We know of any number of highly successful business men that are not good, fair or even poor doctors; they have no time to study medicine. A business man is a business man first, last and always, and the busy doctor is a doctor first and last and with no leisure time to devote to business.

With this thought in mind, Milton Meyer & Co., realtors, 308 Kearny Street, are offering a service that will enable the busy professional man to get the proper business attention and be placed in a position so that his financial investments will be continually safeguarded.

The Art of Medicine in Relation to the Science of Medicine—The *Journal of the Medical Society of the State of New Jersey*, in its June issue, prints an abstract of an article in Harper's Magazine by Dr. Joseph Collins of New York. Its title is "A Doctor Looks at Doctors." It is a thought-stimulating article. One of its closing paragraphs is here quoted:

"My observation and experience convince me that when physicians become engrossed with what is called scientific medicine they not only get divorced from the art of their profession, but they acquire a degree of contempt for it which in many instances amounts to scorn. When they do this they give a leg up to supernaturalists; they prepare a cropper for themselves, and they render the sick a profound disservice.

"It would be a wise thing to devote a part of medical education to the mind of the physician himself, especially as it concerns his patients. For the glories of medical history are the humanized physicians. Science will always fall short; but compassion covereth all."

John Haynes Holmes, distinguished leader of the Community Church of New York, has just announced that a free medical clinic and dispensary is to be established for the church members, signaling "a partnership between religion on the one hand and medicine on the other." Rabbi Wise in the Free Synagogue has for many years maintained a mental hygiene clinic in connection with his institution. Where the psychiatrist and physician are honored and followed, church and synagogue clinics can do much good. Only when the specialists and scientific experts are condemned in the name of spurious science does evil and tragedy result.—San Francisco *Call-Post*.

Medical Directors' Compensation Not Tax Exempt—The compensation received by a medical director of a state or county hospital is no longer exempt from income taxes, under a ruling just announced by the Income Tax Department, according to M. L. Seidman, tax expert of Seidman & Seidman, certified public accountants.

"Heretofore," Mr. Seidman explained, "the law used to be that a medical director in the position mentioned need not pay any income taxes on his compensation since he was a state employee or the employee of a subdivision of a state, and the salaries of such employees were exempt from tax. Under the 1926 law the further requirement was added that the employment be in connection with an essential governmental function. It is now held by the Income Tax Department that operating a hospital is a proprietary rather than a governmental function, and hence the department concludes that the compensation of a medical director is subject to tax under the present law.

"The probabilities are," Mr. Seidman added, "that this ruling will be contested, for there is a serious doubt whether conducting a hospital is purely proprietary. The contention may be made that the state wishes to safeguard life as well as property, and maintaining a public hospital could therefore be regarded as an essential governmental function."

An Iowa Tribute to the Late William Everett Musgrave—Physicians of California who are familiar with the numerous activities of the late William Everett Musgrave, who knew him in any personal intimacy, and who kept in touch somewhat with his many activities, will find it easy to be in accord with the suggestion

of an Iowa colleague, who recently sent to the *Journal of the American Medical Association* a letter in which mention was made of Doctor Musgrave's work in the Philippines. In the April issue of CALIFORNIA AND WESTERN MEDICINE, pages 535 and 536, is printed a list of the scientific publications of Doctor Musgrave, and a perusal of the many studies therein recorded cannot do otherwise than to lead one to the conclusion—that he was indeed an exceptional man among men, and an unusual physician among physicians.

The clipping to which reference is made reads as follows:

To the Editor—In an article entitled "First-Hand Impressions of the Philippine Problem," former Secretary of War Henry L. Stimson pays the following tribute to the medical profession:

"Although we in America have never heard enough about it to give it due credit, the work of the men of the Medical Corps of the United States army and of the United States Public Health Service has written just as bright a page in the Philippines as that which in Cuba and Panama brought about the extermination of yellow fever and saved the southern states of this country from the threat which hung over them every summer."

Among the men who contributed in a very great measure to the success of this work in the Philippines must be included the late William Everett Musgrave. I believe that some movement should be inaugurated to honor the memory of this modest, fearless, untiring worker who, I am sure, received too little recognition during his lifetime.—W. S. OSBORN, M. D., Osage, Iowa.

Huntington Memorial Hospital in Los Angeles County—The section of the will of the late Henry Huntington of Los Angeles, dealing with a bequest of two million dollars for a hospital as a memorial to his uncle, the late Collis P. Huntington, reads as follows:

"Nineteenth: As a memorial to my uncle, Collis P. Huntington, and my son, Howard Huntington, I hereby give, bequeath and devise to Henry M. Robinson, Dr. Ernest A. Bryant, George S. Patton, W. E. Dunn and Caroline E. Holladay, in trust, for the Collis P. and Howard Huntington Memorial Hospital, and for the use and purposes hereinafter stated, the total sum of two million dollars (\$2,000,000); one-third of said sum to be used by said trustees in purchasing the necessary ground and constructing thereon a building to be used as such memorial hospital, and two-thirds of said sum to be invested and reinvested, loaned and reloaned by said trustees for the purpose of making the best available profit thereon, all profits and income derived from the same to constitute an endowment fund for the maintenance and operation of said memorial hospital, which said hospital shall be erected and maintained at or near the city of Los Angeles, in the State of California, for the reception and treatment of individuals, but not including persons afflicted with tuberculosis. I make no provisions in this will for persons afflicted with tuberculosis for the reason that many institutions are being established for the separate treatment of persons so afflicted, and in my opinion, they should be kept separate and apart from persons afflicted with other diseases. In case any of the said trustees herein named shall die, resign or be removed, or for any reason become incapacitated to perform the duties imposed upon them under this will, the surviving trustees shall fill such vacancy by appointment, made in writing, to the end that such trusteeship shall remain perpetual, and said endowment fund kept invested and reinvested, or loaned or reloaned, from time to time, so as to yield an income for the perpetual maintenance of said hospital."

Record of Immunization—A law has been passed in Uruguay, providing for the registration of all cows vaccinated against tuberculosis, with a photograph of each, the date, method and result of the vaccination, and other material deemed necessary by the Government. This step has been taken in order better to enforce regulations requiring the vaccination of all dairy cows against tuberculosis.—*M. J. and Record.*

READERS' FORUM

Treatment for Mussel Poisoning—Noting in the papers report of many cases of food poisoning due to the eating of mussels, permit me to offer to the profession a line of treatment that has never failed me, when given reasonably early in such cases, having had a few recently. This treatment I have tried out for over twenty-five years in many cases of food poisoning from tainted meat, fish, shellfish and mushroom poisoning due to toadstools.

It consists of a hypodermic of one-quarter to half a grain of morphin, depending upon the severity of the pain, then give one heaping teaspoonful of cayenne pepper mixed in at least two ounces of castor oil, to which is added a couple ounces of hot water to float the oil. This medication has never failed to give relief in a short time and in only a few cases have I ever had to repeat the dose. Have treated over one hundred cases of food poisoning with this method without a single death. I feel as sure of its results as when giving antitoxin or other proven remedies. If this will be of any help to others as it has been to me, I will be pleased.

W. C. SHIPLEY,
Cloverdale Hospital.

St. Louis an Important Center for Study of Cancer—St. Louis, long an important center for the study of cancer, will now take rank among the foremost cities of the world in the subject of cancer research. This is made possible by a gift to Washington University School of Medicine of \$1,000,000 for a radiological institute to be known as the Mallinckrodt Radiological Institute. The donors are the General Education Board and members of the Mallinckrodt family, chemical manufacturers of St. Louis.

It is believed that the establishment of the Mallinckrodt Radiological Institute will lead to a consolidation of the Barnard Free Skin and Cancer Hospital with Washington University. This hospital, with an endowment of approximately \$500,000, the gift of the late George D. Barnard, materially added to each year by his widow, is one of the unique institutions in the world. The service is entirely free, and patients suffering from cancer not only get hospital care, but also have the services of some of the most prominent physicians in the city without charge.

While the greatest opportunity the institute will have will be the study of cancer, particularly its causes, prevention and cure, its work will include also the study of the diagnostic and therapeutic uses of x-rays and of those new artificial rays of greater power than the x-ray, whose curative qualities as yet have not been defined.—*Campaign Notes of the American Society for the Control of Cancer.*

The Art of Medicine—Fifty-eight graduates of the Cornell Medical College, who received their degrees as Doctors of Medicine at commencement exercises June 9 at the college building, were admonished by Dr. Charles L. Dana to be "polished ladies and gentlemen as well as skillful and conscientious practitioners."

While stressing the necessity of maintaining the highest standards and always keeping abreast of progress in an exacting profession, Doctor Dana, in the commencement address, warned the graduates that three-fourths of the qualifications for success in medical practice were externals.

"Women will select the doctor who is presentable in preference to the one who is not," said Doctor Dana, "and it is the women who select the family doctor."

Doctor Dana warned especially against professional jealousy, and urged the new doctors to cultivate some interest outside their profession—anything from collecting stamps and old books to some branch of science. He saw a solution of the problem of the country doctor in the fact that the automobile now has made it possible for them to live in a large town, and said the progress of aviation pointed to the eventual use of airplanes by doctors. Half jocularly he urged the graduates to "get married, practice medicine, and learn to fly."

—*Boston M. and S. J.*

CONSTITUTION AND BY-LAWS AND PROPOSED CHANGES*

I

This Section I is a copy of the Constitution and By-Laws with amendments adopted at 1925 session under which the California Medical Association is now functioning. It is this Constitution and By-Laws which will come up for revision at the 1928 annual session at Sacramento.

(For convenience of reference all the Articles of the Constitution and Chapters of the By-Laws belonging to this set I are indicated by the letter A.)

CONSTITUTION

A Article I—Name and Object

Section 1. The name of this Association is the "California Medical Association."

Sec. 2. The purposes of this Association are to promote the art and science of medicine and the betterment of public health. Contributing to this end it shall endeavor to federate and bring into one compact organization the entire medical profession of California, and to unite with similar societies of other States to form the American Medical Association and such regional associations as its House of Delegates may deem advisable; to extend medical knowledge and advance medical science; to elevate the standard of medical education and practice, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of medicine and public health, so that the profession may become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in the prolonging and adding comfort to life. This Association as a constituent unit of the American Medical Association hereby recognizes and pledges its support to the Constitution and By-Laws of the American Medical Association and rulings by competent authority thereof.

A Article II—Component Societies

Component societies shall consist of those county and district societies which hold charters from this Association and whose Constitution and By-Laws, rulings, activities and procedure are not in conflict with the Constitution and By-Laws and decisions of competent authority of this Association.

A Article III—Membership and Guests

Section 1. Members—The members of the Association are the members of the component county societies and include all the active, associate and affiliate members thereof. Every member of the California Medical Association (hereafter elected) must hold the degree of Doctor of Medicine from an institution of learning accredited at the time of conferring such degree by the American Medical Association and must be elected to membership by the component county society of the county wherein he resides, and pay all dues to the secretary of his county society.

Sec. 2. Active Members—Active members shall be elected from those Doctors of Medicine licensed to practice medicine and surgery in the State of California who in the judgment of the component county society of the county of residence thereof are deemed of such ethical integrity as is required for such membership.

Sec. 3. Associate Members—Associate members shall be elected from those Doctors of Medicine engaged in teaching or research work or holding position in Federal service or otherwise, who are not licensed to practice medicine and surgery in the State of California and hence are ineligible to active membership. These members

shall have all the rights and privileges of active members except the right to vote or hold office. Their dues to the State Association shall be one-half the dues of active members, and their dues to their county society shall be fixed by such county society.

Sec. 4. Affiliate Members—Affiliate members shall be elected from those Doctors of Medicine eligible for active membership, but who are for any reason satisfactory to the county society and the Council of the State Association entitled to special consideration. Those members shall have all the rights and privileges of other members except the right to vote or hold office. Their dues to the State Association shall be \$1.00 per year, and their dues to their county society shall be fixed by such county society.

Sec. 5. Honorary Members—Honorary members of the California Medical Association may be elected by the House of Delegates.

Sec. 6. Guests—Any person may become a guest during any annual meeting, on invitation extended by the Secretary with the approval of the Council or the Executive Committee. Guests shall be accorded the privilege of participating in all of the scientific work for that meeting.

A Article IV—House of Delegates

The House of Delegates shall be the legislative body of the Association, and shall consist (1) of delegates elected by the county medical societies, (2) the Councilors, and (3) ex-officio, the President, President-elect, and the Vice-President of this Association.

A Article V—Meetings

Section 1. The regular meetings of this Association shall be held annually at such times and places as the Council shall fix; and notice thereof shall be published in the Journal of this Association in at least two regular issues preceding such regular meeting.

Sec. 2. Special meetings of the House of Delegates may be convened as the By-Laws provide. Twenty-five members shall constitute a quorum in the House of Delegates.

A Article VI—Officers

Section 1. The officers of this Association shall be a President, a President-Elect, a Vice-President, and fifteen Councilors, of whom one shall be elected from each of the nine Councilor districts and six at large, two of whom shall be elected from the County of Los Angeles, and four from the remainder of the State. Not more than three Councilors shall be elected from any one Councilor district. These officers shall be elected by the House of Delegates at the time and in the manner provided in this Constitution and By-Laws.

Sec. 2. The officers, except the Councilors, shall be elected annually. The terms of the elected Councilors shall be for three years.

Sec. 3. The Association shall elect a President for the next succeeding year who shall remain President-elect for one year preceding his assumption of the office of President. While President-Elect he shall be ex-officio a member of the Council and of all other bodies and committees of which the President is an ex-officio member.

Sec. 4. No delegate during his term of service as delegate shall be eligible to any office named in Section one, except that of Councilor, and no person shall be elected President, President-Elect, Vice-President, and Councilor who has not been a member of the Association for two years next preceding his election. Every delegate and alternate to the House of Delegates of the California Medical Association must have been a member of the Association for one year prior to his election.

A Article VII—Council

The Council shall consist of the elected Councilors and ex-officio the President, the President-elect and the Vice-President. Besides its duties mentioned in the By-Laws, it shall constitute the Finance Committee of the House of Delegates. Five Councilors shall constitute a quorum.

A Article VIII—Sections and District Societies

The Council shall provide for a division of the work of the Association into appropriate sections. It shall assist in the organization of such district societies as will promote the best interests of the profession, such societies to be composed exclusively of members of county societies.

* Regarding Constitution and By-Laws here printed, see Editorial on page 225 and Official Notes on page 229.

A Article IX—Funds and Expenses

Funds shall be raised by equal per capita assessments upon the active members of each county society, and by such donations, voluntary subscriptions, proceeds from publications and such other earnings as are acceptable to the Council. The amount of assessments shall be fixed by the House of Delegates by a two-thirds vote thereof of those present. The fiscal year of the society shall be from January 1 to December 31. The number of members in good standing in each county society on the first day of October of each year shall be taken as the basis for the assessment for the following fiscal year.

A Article X—Referendum

The House of Delegates, in regular or special session assembled, the Council, or the Association in general session, may by a two-thirds vote submit any question in such form as they may approve, to all of the members of the Association by mail, and a majority of the vote so cast by mail by the members of this Association shall bind the Association and all county societies thereof upon the question presented.

A Article XI—The Seal

The Association shall have a common seal, with such inscription thereon as the Council may prescribe.

A Article XII—Amendments

The House of Delegates at any annual meeting may amend any article of this Constitution by a two-thirds vote of the delegates present, provided that such amendment shall have been presented in open meeting at the previous annual meeting, and that it shall have been published twice during the year in the Journal of this Association, or sent officially to each county society at least two months before the meeting at which final action is to be taken.

BY-LAWS

A Chapter I—Membership

Section 1. All members of county societies—active, associate, and affiliate—shall by virtue of such membership hold corresponding membership in the California Medical Association upon certification by the Secretary of the county society of such membership and receipt by the Secretary of this Association of the assessment for the fiscal year.

Sec. 2. Any person who is under sentence of suspension or expulsion from a county society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings, nor receive its publications, until he has been relieved of such disability.

Sec. 3. It shall be the duty of the Secretary of each county society to furnish the Secretary of the Association before the first day of March of each year a list by names and addresses of all members in good standing on the first day of January of each year, and to notify the Secretary of this Association monthly of all changes in membership of the constituent society, with corresponding change of address.

Sec. 4. Any physician residing in a county in which there is no county society may make application and be admitted to the county society most convenient to the county in which he resides, subject to the requirements of membership in said county.

Sec. 5. A member who changes his residence from the county through whose society he holds membership in this Association to another county in which there is a county society, is eligible to membership in the component county society of his new residence on the presentation of a transfer card, and an official statement that his dues have been paid in full in the society in which he holds membership; provided that no evidence which would otherwise disqualify him for membership arise. He shall forfeit his membership in this Association one year after

change of location unless he becomes a member of the society of the county to which he has moved. Any member who has heretofore changed his residence as aforesaid shall have one year after the date of adoption hereof to comply with the provisions of this section.

A Chapter II—Meetings

Section 1. The annual meeting of this Association shall be held at such time and place as the Council shall appoint.

Sec. 2. Special meetings of the House of Delegates may be called by the President upon request so to do by a majority vote of the Council, and shall be called by him upon the written request of at least twenty delegates, provided that all members of the House of Delegates are notified as to the time, place and object of the proposed meeting, by written notice, given at least ten days prior thereto.

Sec. 3. General Sessions, Sessions of the House of Delegates and Section Meetings except as otherwise provided by the Constitution and these By-Laws—the time for the convening of each thereof, the number of meetings, duration and place thereof, shall be fixed by the chairman of the committee on scientific program, with the approval of the Council.

A Chapter III—House of Delegates

Section 1. The House of Delegates shall be the legislative body of the Association, and shall consist of the officers of the Association and the regularly elected and properly certified delegates or alternates representing their several county societies.

Sec. 2. Each county society shall be entitled to send to the House of Delegates each year one delegate and one corresponding alternate for every fifty members as of the first day of October of the preceding year, and one for each major fraction thereof, provided that each county society which has made its annual report and paid its assessment, as provided in this Constitution and By-Laws, shall be entitled to at least one delegate and one alternate.

Sec. 3. Twenty-five delegates shall constitute a quorum.

Sec. 4. Delegates and alternates shall be elected for a term of two years, and those societies entitled to more than one representative shall arrange such election so that one-half of their delegates and alternates, as near as may be, shall be elected each year.

Sec. 5. The House of Delegates shall approve all memorials and resolutions of whatever character issued in the name of the Association before the same shall become effective.

Sec. 6. The sessions of the House of Delegates shall be open to all members of the Association.

Sec. 7. The House of Delegates shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the discussion of their reports.

Sec. 8. The House of Delegates shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

A Chapter IV—Duties of Officers

Section 1. The President shall preside at the meetings of the Association and of the House of Delegates; he shall appoint all committees not otherwise provided for; and perform such other duties as custom and parliamentary usage may require.

Sec. 2. The Vice-President shall assist the President in the discharge of his duties and act for him in his absence.

Sec. 3. The Secretary shall attend the general meetings of the Association; the meetings of the House of Delegates and of the Council, and shall keep the minutes of their respective proceedings. He shall be ex-officio

Secretary of the Council. He shall be custodian of all records, books and papers belonging to the Association, and shall keep account of and promptly turn over to the depository all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the annual meetings. He shall, with the co-operation of the secretaries of the county societies, keep an approved register of all the members of the Association by counties, noting on each his status in relation to his county society. He shall aid the Councilors in the organization and improvement of the county societies and in the extension of the usefulness of this Association. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and communities of their appointment and duties. He shall employ such assistants as may be authorized by the Council, and shall make an annual report to the House of Delegates. He shall supply each county society with the necessary blanks for making its annual report; he shall keep an account with the county societies, charging against each society its assessment, and collect the same. He shall in like manner keep an account with each member as to any assessment or assessments levied directly upon each member, and collect the same. As chairman of the committee on scientific program, he shall prepare and issue all programs. He shall perform such other duties as the Council may direct. He shall be appointed by and have his compensation fixed by the Council.

Sec. 4. The depository of the Association shall be a bank or trust company to be selected by the Council. All funds received for the Association by any officer or agent thereof shall be promptly paid to the Secretary and by him deposited with the depository. The depository shall pay out the money of the Association only upon a check or draft signed by the Secretary and countersigned by the chairman or other designated member of the Council. The Secretary shall issue such checks or drafts only upon vouchers approved by the Auditing Committee and signed by all members thereof. A revolving fund in such amount as may from time to time be fixed by the Council shall be left with the Secretary, from which fund immediate cash demands may be paid.

A Chapter V—Council

Section 1. The Council shall meet on the day preceding the annual meeting of this Association and daily during its sessions, and it shall also hold at least three other meetings during the year, at least one of which shall be held in the southern part of the State. Special meetings may be called by the chairman at any time, and he shall call a special meeting upon the written request of at least three councilors, provided written notice of the time, place and object of the proposed special meeting be given by the Secretary to all members of the Council not less than seven days prior to such meeting. At the meeting held on the last day of the annual meeting of the Association the Council shall reorganize and shall elect a chairman for the ensuing year. The chairman shall make an annual report to the House of Delegates.

Sec. 2. The Council shall have power to invest the funds of the Association, and to do and perform all acts and transact all business for and on behalf of the Association when the House of Delegates is not in session. It shall also have power to delegate such powers and duties as it may determine to the Executive Committee hereinafter provided for.

Sec. 3. In the event of a vacancy in the Council, or in any elective or other office not otherwise provided for, the Council shall fill the vacancy until the next annual election or other regular selection, as provided for in the Constitution and By-Laws.

Sec. 4. The Council shall provide for the publication and distribution of a periodical to be known as the "Journal of the California Medical Association," or some other satisfactory title to be determined by the Council, and such other publications as may be necessary, and shall have authority to engage an editor at such compensation as it may deem proper, who shall be responsible to the Council, and who shall edit and conduct the journal

and other publications in a manner and under conditions satisfactory to the Council.

Sec. 5. The Council shall engage, and arrange for the compensation of, a secretary, who shall be the executive officer of the Council and of the Society.

Sec. 6. The Council shall secure the services of competent public accountants and cause them to audit the accounts of all officers, committees and agents of the Association at least once a year, and shall present a report to the House of Delegates.

Sec. 7. The Council shall divide the State into Councilor districts, according to the number of districts fixed by Article VI, Section 1, of the Constitution, specifying what counties each district shall include. Whenever the number of delegates, as provided in Chapter III, Section 2, exceeds one hundred, it shall make a reapportionment that shall bring the number of delegates within this limit. Such reapportionment shall take effect immediately following the annual meeting at which the reapportionment is approved by the House of Delegates.

Sec. 8. The Council may, upon application, issue charters to county societies organized to conform to the letter and spirit of the Constitution and By-Laws, rulings and regulations of the Association, and such county society shall not amend or change the same, contrary thereto. The Council may, upon application, issue similar charters to other societies of physicians, otherwise qualified to become members of a county society and of this Association, where by reason of geographical or other conditions county organizations are not feasible or calculated to promote the best interests of the profession or of the public. Said district county society shall in like manner be organized to conform to the letter and spirit of the Constitution and By-Laws, rulings and regulations of this Association, and such county societies shall not change or amend the same contrary thereto.

Sec. 9. The Council, when the best interest of the Association and profession will be promoted thereby, may organize district medical societies, and members of the county societies, and no others, may be members of such district societies.

Sec. 10. The Council may promote and cause to be organized societies of medical or premedical students in any approved teaching institution in this State, with such affiliation with this Association and under such control as it may deem advisable and proper.

Sec. 11. The Secretary, with the written authorization of the chairman of the Council, may submit any urgent question to the Council by mail ballot and the result as shown by such ballot shall be binding.

Sec. 12. The chairman of the Council shall annually appoint a committee of two who shall audit the accounts of the Association at least once every month. Said Auditing Committee shall elect a chairman.

Sec. 13. The Council shall appoint an attorney-at-law in good standing, practicing his profession at San Francisco, to act as general attorney for the Association, and an attorney practicing his profession at Los Angeles to act as assistant general attorney. The general attorney shall, so far as possible, attend the sessions of the Council and of the House of Delegates and shall generally advise and counsel with the councilors and officers of the Association. The general attorney or assistant general attorney shall have charge of all actions for malpractice against individual members of the Association on behalf of such members whenever their defense is authorized by the Association, through the Council, the Executive Committee or the Secretary thereof.

Sec. 14. All questions cognizable by this Association of more than local importance whether involving interpretation of ethics, definition of policy, decision in controversy, financial, organizational or other matter not provided for by the Constitution and By-Laws which arise between annual sessions shall be referred to the Council for action, and its action shall be binding upon the Association and its component member societies, provided that the action by the Council is subject to review by the House of Delegates or by a general referendum.

Sec. 15. The Executive Committee of the Council shall consist of the President, the President-elect, the Vice-President of the Association, the chairman of the Council,

the chairman of the Auditing Committee, the Secretary-Editor, and the general attorney. The committee shall elect its own chairman, and the Secretary shall act as secretary thereof. It shall keep a record of its proceedings and report them to the Council, and all of its proceedings shall be subject to the approval of the Council.

A Chapter VI—Order of Procedure

The Program Committee shall consist of the Secretary of the Association and four members of the Association who shall be elected by the House of Delegates, one each year to serve for four years. The Secretary of the Association shall be the chairman thereof. It shall determine the character and scope of the scientific proceedings of the Association, subject to the instructions of the Council, and shall provide for and fix the order of business at the sessions of the general meeting, the sessions of the House of Delegates and the sessions of each section.

A Chapter VII—County Societies

Section 1. Each county society of this Association, which has adopted principles of organization not in conflict with the Constitution and By-Laws, rulings and procedures of this Association, shall, on application, receive a charter from and become a component part of this Association. Such charters shall provide that the Constitution and By-Laws and procedures of the component member society shall not be amended in any way which might conflict with the Constitution and By-Laws of the American Medical Association and of this Association as originally drawn or as modified by competent authority, except by and with the written approval of the Council of this Association.

Sec. 2. Charters shall be issued only by the House of Delegates after approval by the Council, and shall be signed by the President and Secretary of this Association. The House of Delegates, upon recommendation of the Council, shall have authority to revoke the charter of any county society whose actions are in conflict with the letter or spirit of the Constitution and By-Laws, policies and procedures of this Association.

Sec. 3. Only one medical society shall be chartered in any one county, provided that the physicians in a portion of any one county who can show adequate reasons satisfactory to the Council therefor may be authorized to join some other county society as elsewhere provided for in this Constitution and By-Laws.

Sec. 4. Each county society shall judge the qualifications of its members. However, as such societies are integral parts of this Association and all the basis of membership in the American Medical Association, it is necessary that the qualifications meet the minimum requirements of the State and National organizations. These minimum requirements are that to be eligible for election as an active or affiliate member the applicant must hold the degree of Doctor of Medicine from an institution of learning accredited at the time of conferring such degree by the American Medical Association, and must be licensed to practice medicine and surgery in the State of California. Every associate member must hold the degree of Doctor of Medicine from an institution of learning accredited at the time of conferring such degree by the American Medical Association, and must not be licensed to practice medicine and surgery in California, and hence be ineligible to active membership. A member must not practice or claim to practice or lend his support, co-operation, or in any other way endorse any exclusive system of medicine or any person practicing the same. He shall be honorable and ethical in his conduct and shall subscribe to the principles of medical ethics of the American Medical Association, and shall recognize the Council of this Association as the proper authority to interpret any doubtful points in ethics. Every applicant for membership in a county society shall fill out and sign in duplicate the application blanks provided by the society which prescribe the necessary qualifications for membership. One copy of each such application shall be promptly forwarded to the office of this Association.

Sec. 5. Any physician who may feel aggrieved by the action of the society of his county in refusing him mem-

bership, or in censuring, suspending or expelling him, shall have the right to appeal to the Council within the period of three months next succeeding the date of such action of his county society, which appeal shall be in writing and filed within the said period in the office of the Secretary of this Association. Within a period of three months after a decision by the Council thereon, any party interested may appeal to the House of Delegates, whose decision in any case shall be final. Such appeal shall, in like manner, be in writing and filed within said period of three months at the office of the Secretary of this Association.

Sec. 6. In hearing appeals, the Council shall review all questions involved and may appoint committees from its own number or any notary public to act as referee for the purpose of taking evidence upon any point or question which shall thereafter be submitted to the full membership of the Council, and it shall use any lawful means in its judgment as will best and most fairly present all the facts involved. In every case of an appeal, the Council as a board and as individual councilors, shall exert all proper efforts at conciliation and compromise prior to any hearing being held upon the appeal.

Sec. 7. When a member in good standing in a county society moves to another county or other jurisdiction in this State, his name, on request, shall be transferred, without cost, but upon assuming such financial obligation as shall be deemed proper by the county society to which he is transferred.

Sec. 8. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, provided that the consent of the society of the county in which such physician may reside be first obtained, and also the consent of the society which he desires to join.

Sec. 9. The Secretary of each county society shall keep a roster of its members and of the non-affiliated registered physicians of the county, on which shall be shown the full name, address, school and date of graduation, date of license to practice in this State and such other information as may be deemed necessary. In keeping such roster the Secretary shall note and at once notify the State Secretary of any changes in the personnel of the profession, by death, by resignation, or by removal to or from the county, and in making his annual report he shall account for every physician who has lived in the county during the year. The Secretary of each county society shall make a monthly report to the Secretary of this Association upon such forms and including such subjects as the Council may authorize.

Sec. 10. The Secretary of each county society shall forward its assessments, together with its roster of officers and members, list of delegates and alternates and list of non-affiliated physicians of the county to the Secretary of this Association before the first day of March of each year. Only those delegates and alternates who are duly elected and certified to the State Secretary before March 1 may represent their society in the House of Delegates.

Sec. 11. Any county society which fails to pay its assessments or make the report required on or before March 1 shall be held as suspended, and none of its members, delegates or alternates may participate in any of the business or proceedings of the Association or of the House of Delegates during the annual session of that year, nor thereafter, until all requirements for membership have been met.

Sec. 12. No member of a county society shall be deprived of his membership unless by his own act, except by a three-fourths affirmative vote of all the regular membership in good standing of the county society to which he belongs present and voting at a regular meeting, thereof, and only after at least six weeks' written notice personally delivered to the member, has been served upon him fully stating the charges against him, and only after such member shall have been given full opportunity to be heard in his own defense at such meeting; but a member shall be dropped on the revocation of his license to practice by the duly constituted and legal authority of the State of California vested at the time with the power to revoke such license.

Sec. 13. When a member resigns his membership in a county society, he shall thereby forfeit all right and title

to any share in the privileges and property of the California Medical Association.

Sec. 14. Any county society may, in its discretion, elect active, associate, and affiliate members under and pursuant to the provisions of Article III of this Constitution. Any county society may also elect honorary members of its own society, but such honorary members shall not thereby be honorary members of this Association.

A Chapter VIII—Miscellaneous

Section 1. The principles of medical ethics of the American Medical Association are adopted as the principles of medical ethics of this association and are made part of the charter provisions for county societies. Interpretation of points in ethics about which there may be any controversy shall be submitted to the Council, of the State Association for ruling and its rulings shall be final.

Sec. 2. New members who join a county society after July 1 shall pay only one-half the regular annual assessment for such fiscal year.

Sec. 3. The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts' Rules of Order, when not in conflict with this Constitution and By-Laws.

A Chapter IX—Amendment to By-Laws

Section 1. The House of Delegates may amend any chapter or section of the By-Laws by a two-thirds affirmative vote of the delegates present and voting; provided, that such amendment has been submitted in writing and laid on the table for twenty-four hours previous to being voted upon.

Sec. 2. The Constitution and By-Laws heretofore governing this Association as the Medical Society of the State of California are hereby repealed and this Constitution and By-Laws shall be in full force and effect immediately after they are declared duly adopted.

II

This Section II is a proposed Constitution and By-Laws, adapted from the model constitution and by-laws suggested for state medical societies, by the American Medical Association. The modified draft here printed was introduced in printed form in the House of Delegates by the Special Committee on Revision (Dr. G. H. Kress, chairman), at the 1927 annual session at Los Angeles.

(For convenience of reference all the Articles of the proposed Constitution and Chapters of the proposed By-Laws belonging to this set II are indicated by the letter B.)

Foreword by Committee

March 30, 1927

To the House of Delegates of the California Medical Association:

Doctors:

In December, 1926, Dr. O. D. Hamlin, chairman of the Council, appointed a committee on revision of the Constitution and By-Laws, with instructions to submit its recommendations to the House of Delegates. Its membership is given below.

In taking up its work, the committee found that the American Medical Association, through its House of Delegates, had prepared a form of constitution and by-laws in 1925, and that a number of the constituent state associations had adopted it with modifications to suit their own special needs.

A study of this form revealed that it very readily could be used by the California Medical Association.

The proposed revision which is here submitted is based on this A. M. A. model, incorporating practically all of

our present rules. There is no radical departure therein from our present Constitution and By-Laws. Changes which have been made will be dealt with in a separate report by the chairman of the committee.

Our state organization is a somewhat loosely knit association, and yet the welfare of organized medicine in California is a reflex of the manner in which it functions. We meet once a year in convention. The membership as a whole acts then in its scientific activities and sections. At the same time, the membership as a whole, delegates to representatives (delegates) from the county units the responsibility of going over the major business of the year; provides that these delegates shall elect a number of members of the society to a board of directors (the Council), which acts for the Association and its House of Delegates, during the intervals between annual meetings.

In an association as large as that of California, it is very necessary that a practical, centralized, elastic method of organization shall exist, if best results are to be attained. We live in a day in which efficiency is a slogan in daily living. In associations, as well as with individuals, practical methods of procedure which have stood the test of experience and time, provide the best basis for successful end-results. This revision keeps this fact in mind.

Respectfully submitted,

The Committee on Revision of Constitution and By-Laws.

By SOUTHERN SECTION:

George H. Kress, General Chairman
W. T. McArthur, Subchairman
William Duffield

NORTHERN SECTION

George Reinle, Subchairman
Emmet Rixford
John Woolsey

GENERAL SECTION:

Charles L. Curtiss, Subchairman
Fred R. DeLappe
Junius B. Harris

CONSTITUTION

B Article I—Name of Association

The name and title of this organization shall be the California Medical Association.

B Article II—Purpose

The purposes of this Association are to promote the science and art of medicine, the protection of public health, and the betterment of the medical profession; and to unite with similar organizations in other states and territories of the United States to form the American Medical Association.

B Article III—Component Societies

Section 1. Component Societies shall consist of those county medical societies which hold charters from this Association.

Sec. 2. The terms, county medical society and component county medical society, shall be deemed to include all county medical societies and academies of medicine now in affiliation with this Association, or which may hereafter be organized and chartered by the House of Delegates of this Association.

B Article IV—Composition of the Association

This Association shall consist of members who shall be the members of the component county medical societies who have been certified to the headquarters of this Association, and whose dues and assessments for the current year have been received by the Secretary.

B Article XII—Incorporation

To aid in carrying out the objects of the Association, the House of Delegates at any session of any regular or special meeting thereof, may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to cause the formation and organization of a nonprofit corporation under the laws of the state of California, without capital stock, with such incor-

porators, name, purposes, objects, principal place of business, term, number of directors and directors to serve for the first year and until their successors are elected, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and such further provisions in the Articles of Incorporation thereof, and with By-Laws and composed of such members representing this Association as the Council shall prescribe, fix and determine. The House of Delegates may at its option in connection with the granting and giving of such authority, power and direction to the Council, prescribe, fix and determine any or all of such matters pertaining to the said corporation, its Articles of Incorporation and any provision thereof, By-Laws and membership, and its action thereon shall bind the Council; and the House of Delegates at any session of any regular or special meeting thereof may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to grant, assign, transfer, convey and deliver to the said corporation upon the formation thereof without any consideration therefor, any property, real or personal, of the Association, which authorization, power and direction may be given prior or subsequent to the formation and organization of said corporation.

B Article V—House of Delegates

The House of Delegates shall be the legislative body of the Association, and shall consist (1) of delegates elected by the component county societies, and (2) the officers of the Association enumerated in Section 1 of Article IX of this Constitution.

B Article VIII—Sessions and Meetings

Section 1. The Association shall hold an annual session during which there shall be at least two general meetings, open to all registered members, delegates, and guests.

Sec. 2. The time and place for holding each annual session shall be fixed by the Council.

Sec. 3. Special meetings of the Association may be called by a three-fourths vote of the Council.

Sec. 4. Special meetings of the House of Delegates may be called by a two-thirds vote of the Council, or upon petition by fifty delegates.

B Article IX—Officers

Section 1. The officers of this Association shall be a President, a President-Elect, a Secretary-Treasurer, a Speaker of the House of Delegates, and fifteen Councilors.

Sec. 2. The officers, except the Councilors, shall be elected annually. The terms of the Councilors shall be for three years. Three district councilors and two councilors-at-large shall be elected each year.

The Secretary-Treasurer shall be elected by the Council.

All these officers shall serve until their successors are elected and installed.

B Article VI—Council

The Council shall be the Board of Trustees of this Association.

The Council shall have full authority and power of the House of Delegates between annual sessions, unless the House of Delegates shall be called into session as provided in the Constitution and By-Laws.

It shall consist of the Councilors, the President, the President-Elect, the Speaker of the House of Delegates, the Secretary-Treasurer of the Association. Ten of its members shall constitute a quorum.

B Article VII—Sections and District Societies

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interests of the

profession, such societies to be composed exclusively of members of component county societies.

B Article X—Funds and Expenses

Funds shall be raised by an equal per capital assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates.

Funds may also be raised by voluntary contributions, from the Association's publications and in any other manner approved by the House of Delegates.

The Council shall submit an annual budget to the House of Delegates. All resolutions providing for appropriations shall be referred to the Council and all appropriations approved by the Council shall be included in the annual budget.

B Article XI—Referendum

At any general meeting of the Association it may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates. The House of Delegates may, by a vote of its members, submit any question to the membership of the Association for its vote. A majority vote of all the members of the Association shall determine the question.

B Article XIII—Seal

The Association shall have a common seal. The power to change or renew the seal shall rest with the House of Delegates.

B Article XIV—Amendments

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at any Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been published twice during the year in the bulletin or journal of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

BY-LAWS

B Chapter I—Membership

Section 1. The name of a physician on the official roster of this Association, after it has been properly reported by the secretary of his county society, shall be prima facie evidence of membership and of his right to register at the Annual Session.

Sec. 2. No person who is under sentence of suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Association.

Sec. 3. Each member in attendance at the Annual Session shall register, when his right to membership has been verified by reference to the records of this Association. No member shall take part in any of the proceedings of the Annual Session until he has complied with the provisions of this section of the By-Laws.

B Chapter II—General Meetings

Section 1. The General Meetings shall be open to all registered members and guests. Before them, at such time as may have been arranged, shall be delivered the annual addresses of the President and of the President-Elect and the annual orations.

Sec. 2. No address or paper, except those of the President, the President-Elect and the annual orations, shall occupy more than twenty minutes in its delivery. No member, except by unanimous consent, shall speak more than once in the discussion of any paper nor longer than five minutes at any one time.

Sec. 3. All papers read before this Association shall be its property. Each paper, when it has been read, shall be deposited with the Secretary. Authors of papers read

before this Association shall not cause them to be published elsewhere, except with the consent of the journal of this Association.

B Chapter III—House of Delegates

Section 1. The House of Delegates shall meet annually at the time and place of the Annual Session.

Sec. 2. Each component county society shall be entitled to send each year one delegate or one corresponding alternate to the House of Delegates for each fifty full-paid members or major fraction thereof in this Association, as of date of the first day of October of the preceding year; provided, however, that each county society shall be entitled to at least one delegate or one corresponding alternate.

Sec. 3. Thirty-five delegates shall constitute a quorum of the House of Delegates. All meetings of the House of Delegates shall be open to members of the Association.

Sec. 4. The term member in this Constitution and By-Laws refers to an active member, that is, one who has the right of suffrage and all other rights and privileges of the Association.

In addition to such active members, there shall be associate members, as follows:

Affiliate members shall be elected from those Doctors of Medicine engaged in teaching or research work or holding position in federal service or otherwise, who are not licensed to practice medicine and surgery in the state of California and hence are ineligible to active membership. These members shall have all the rights and privileges of active members except the right to vote or hold office. Their dues to the State Association shall be one-half the dues of active members, and their dues to their county society shall be fixed by such county society.

Retired members of the California Medical Association may be elected by the House of Delegates; or by the Council, if the nomination is officially sent to the Council by a component county society.

Sec. 5. From among members of the House of Delegates the Speaker of the House of Delegates, for the purpose of expediting proceedings, shall appoint committees, as follows:

(a) A Committee on Credentials, of three members, one to be designated as chairman. The Secretary shall give this committee a list of component county societies, showing the total membership, as of October 1 of the preceding year. This committee shall ask each delegate and alternate to present his written credentials, but shall accept the official written list submitted by the Secretary of any component society; provided that such written list be sent to the State Association Secretary at least seven days before the beginning of the annual session.

(b) Reference Committee, of five members, one to be designated as chairman. To this committee shall be referred the addresses of the President, President-Elect, invited speakers at the general session, reports of the Council, auditors, changes in the Constitution and By-Laws, and all resolutions submitted to the House of Delegates. At the second session of the House of Delegates the committee shall present a report in writing, dealing with and making recommendations or comment on such of these matters as was desirable. The report of the committee shall first be read as a whole; and the House of Delegates shall then vote on this report, section by section.

(c) An Auditing Committee of three members, consisting of the chairman of the Executive Committee and two other members of the Council. The chairman of the Executive Committee shall be chairman of the Auditing Committee. This committee shall examine and pass on all vouchers for expenditures submitted by the Secretary-Treasurer. The signatures of at least two members of the Auditing Committee shall be necessary on vouchers before checks or drafts can be drawn by the Secretary-Treasurer, as otherwise provided.

Sec. 6. The House of Delegates shall elect delegates to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

Sec. 7. The House of Delegates, upon recommendation of the Council, shall divide the state into Councilor Districts, specifying what counties each district shall include,

and, when the best interest of the Association and the profession will be promoted thereby, organize in each a district medical society, of which all members of the component county societies shall be members.

Sec. 8. The House of Delegates shall have authority to appoint committees for special purposes from among members of the Association who may or may not be members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Sec. 9. The House of Delegates shall approve an annual budget of expense to be submitted to it by the Council.

Sec. 10. It shall approve all memorials and resolutions issued in the name of the Association during an annual session before they shall become effective.

B Chapter IV—Election of Officers

Section 1. The election of officers shall be the first order of business of the House of Delegates at the second meeting of the House.

Sec. 2. All elections of officers shall be by ballot; provided, that by unanimous consent ballot election may be waived.

A majority of the votes cast shall be necessary to elect, except for delegates and alternates to the American Medical Association. In case no nominee receives a majority of the votes on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast, when he shall be declared elected. In case no delegates or alternates for the American Medical Association receive on the first ballot a majority of the vote, the nominees shall be declared elected in the order of the highest number of votes received, until the allotted number shall have been chosen. In case of a tie vote for delegate or alternate, the tie shall be determined by lot.

Sec. 3. Delegates shall not be eligible for election to any of the offices named in the Constitution, except that of Councilor.

B Chapter V—Duties of Officers

Section 1. The President shall preside at all meetings of the Association.

He shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and shall perform such other duties as custom and parliamentary usage may require.

He shall be the real head of the profession of the state during his term of office, and, as far as practicable, shall visit, by appointment, the various sections of the state and assist the Councilors in building up the county societies, and in making their work more practical and useful. The Council shall decide what portion of the expenses incurred on his official visits shall be paid by the Association.

He shall be a member of a Council for a period of one year immediately succeeding his term of office. He shall be ex-officio a member of all committees of the Association.

Sec. 2. The President-Elect shall be a member of the Council ex-officio, shall act for the President in his absence or disability. If the office of President should become vacant the President-Elect shall succeed to the presidency.

Sec. 3. The Secretary-Treasurer shall attend the General Meetings of the Association, the meetings of the House of Delegates, of the Council and of the Executive Committee, and shall keep minutes of their respective proceedings in separate record books.

He shall be custodian of all record books and papers belonging to the Association.

He shall provide for the registration of the members and delegates at the Annual Session.

He shall, with the cooperation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society, and shall transmit a copy of this list to the American Medical Association, transmitting to its secretary each month a report containing the names of new members and the names of those dropped from the membership roster during the preceding month.

He shall conduct the official correspondence, notifying

members of meetings, officers of their election and committees of their appointment and duties.

He shall employ such assistants as may be ordered by the Council and shall make an annual report to the House of Delegates.

He shall supply all component societies with the necessary blanks for making their annual reports, and shall collect from them the regular per capita assessments and deposit the same in such depository banks as may be designated as such by the Council. The amount of his salary shall be fixed by the Council.

He shall give bond in such sum as may be decided upon by the Council. The Association shall pay the premium on the said bond. He shall demand and receive all funds due the Association, together with bequests and donations.

He shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

He shall pay out the money of the Association only upon a check or draft signed by the Secretary-Treasurer, or the acting Secretary-Treasurer, if such officer has been appointed by the Council, and countersigned by the chairman, or other designated member of the Council, elected by the Council.

The Secretary-Treasurer shall issue such checks or drafts only upon vouchers approved and signed by at least two of the three members of the Auditing Committee, as otherwise provided.

Sec. 4. The Speaker of the House of Delegates shall preside at the meetings of the House and shall perform such other duties as parliamentary usage may require. He shall appoint all committees authorized by the House of Delegates, unless otherwise provided.

He shall be ex-officio, a member of the Council.

B Chapter VIII—Dues and Assessments

Section 1. The annual dues and assessments shall be determined by the House of Delegates, and shall be levied per capita on the members of the Association.

They shall be payable on or before January 1, of the year for which they are levied.

The Secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such date as shall be required for a record of its officers and membership.

Any member whose name has not been reported for enrolment and whose dues for the current year have not been remitted to the Secretary of this Association on or before April 1, shall stand suspended until his name is properly reported and his dues for the current year properly remitted.

Sec. 2. The record of payment of dues and assessments on file in the offices of the Association shall be final as to the fact of payment by a member and as to his right to participate in the business and proceedings of the Association and of the House of Delegates.

Sec. 3. Any county society which fails to make the reports required, at least thirty days before the Annual Session of the State Association, shall be held suspended, and none of its members or delegates shall be permitted to participate in any of the proceedings of the Association or of the House of Delegates.

Sec. 4. For the purposes of medical defense, in case such medical defense is being maintained at any particular time as one of the activities of the Association, a member shall be deemed in arrears from and during the period extending from January 1 of the current year until his dues and assessments shall have been received at the offices of the Association, having been remitted by the Secretary of the component society of which he is a member.

B Chapter VI—Council

Section 1. The Council shall meet on the day preceding the Annual Session, and daily during the Session and at

such other times as necessity may require, subject to the call of the chairman or on petition of three Councilors.

It shall meet on the last day of the Annual Session of the Association to organize.

It shall make an annual report to the House of Delegates.

Sec. 2. Each District Councilor shall be organizer, peacemaker and censor for his district.

He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exists, for inquiring into the condition of the profession, and to keep in touch with the activities of and to aid in the betterment of the component societies of his district.

He shall make an annual report of his work, and of the condition of the profession of each county in his district at the Annual Session of the House of Delegates.

The necessary traveling expenses incurred by each Councilor in the line of duties herein imposed either in visitation of component county societies, attending Council or Executive Committee meetings and so on, may be allowed on a proper itemized statement, according to such limitations as the Council may deem wise to adopt, but this shall not be construed to include his expense in attending the Annual Session of the Association.

Sec. 3. The Council shall be the executive body of the House of Delegates and between sessions shall exercise the power conferred on the House of Delegates by the Constitution and By-Laws.

The Council shall be the Board of Censors of the Association. It shall consider all questions involving the right and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component societies, on which an appeal is taken from the decision of an individual Councilor. Its decision in all cases, including questions regarding membership in this Association, shall be final.

Sec. 4. Charters shall be issued to county societies only on approval of the Council, and shall be signed by the President and Secretary of this Association.

Upon the recommendation of the Council, the House of Delegates may revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 5. In sparsely settled sections the Council shall have authority to organize the physicians of two or more counties into societies, to be suitably designated by hyphenated county names, so as to distinguish them from district societies and these societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

Sec. 6. The Council shall provide for and superintend the issuance of all publications of the Association, including proceedings, transactions and memoirs, and shall have authority to appoint an editor or editors and such assistants as it deems necessary.

It shall prescribe the methods of accounting and through a committee of three of its members, to be known as a Committee on Auditing and Appropriations, shall audit all accounts of this Association. The Council shall adopt an annual budget providing for the necessary expenses of the Association. A preliminary draft of such budget shall be prepared and presented for its consideration by the Committee on Auditing and Appropriations at the first meeting of the Council following the annual meeting of each year.

Through the Council, it shall submit an annual report to the House of Delegates, which shall specify the character and cost of the publications of the Association, the amount and character of all of its property, and shall provide full information concerning the management of all financial affairs of the Association which the Council is charged to administer.

Sec. 7. The Chairman of the Council, subject to the approval of the Council, shall appoint at least six months

before the annual meeting, a Committee on Arrangements for the annual meeting, one member thereof being designated as the general chairman. This committee shall consist of five members, at least three of whom shall be members of the component society of the county in which the annual meeting is to be held.

The Secretary-Treasurer of the Association shall be ex-officio, also a member of this committee.

As the local Committee of Arrangements this committee shall provide suitable meeting places and shall have general charge of all local arrangements.

The Council shall decide what portion of the income from Commercial Exhibit or other convention sources shall go to the local Committee of Arrangements. Also what share of the expenses shall be borne by the Association.

Sec. 8. The Council shall by appointment fill any vacancy in office not otherwise provided for which may occur during the interval between annual meetings of the House of Delegates; the appointee shall serve until his successor has been elected and has qualified.

Sec. 9. The Council may employ an Executive Secretary, who need not be a physician nor a member of the Association.

Sec. 10. The salaries of all employees of the Association shall be fixed by the Council.

Sec. 11. The Council shall provide such headquarters for the Association as may be required to conduct its business properly.

This committee shall have the right to request the attendance of the Counsel of the Association, at any meetings at which it might desire his presence and advice.

B Chapter VI—Order of Procedure

The committee on scientific program shall consist of the Secretary of the State Association, the editor, the secretaries of the sections on general surgery and general medicine, and three others to be elected by the House of Delegates for a term of three years, one being elected each year. The Secretary of the Association shall be the chairman thereof. It shall determine the character and scope of the scientific proceedings of the Association, subject to the instructions of the Council. (First introduced at 1926 H. D.)

B Chapter VII—Committees

Section 1. The standing committees of this Association shall be as follows:

- (a) An Executive Committee.
- (b) A Committee on Scientific Work.
- (c) A Committee on Public Policy.
- (d) A Committee on Publication.
- (e) A Committee on Medical Defense.
- (f) A Committee on Medical Education and Hospitals.
- (g) A Committee on Medical Economics.

Unless otherwise provided in these By-Laws, each of these committees shall consist of three members, each of whom shall serve for a term of three years. One member of each of these committees shall be nominated annually by the Council, by and with the consent of the House of Delegates, provided that at the fifty-seventh Annual Session one member of each of the foregoing committees shall be appointed for a term of three years, one each for two years, and one each for one year.

To aid it in its work, each committee, if it so desires, with the exception of the Executive Committee, shall have the power to appoint an Advisory Group to its committee, consisting of from two to ten members. Such advisory members, if present at a regular committee meeting, shall not have the right to vote.

Each of these committees shall, each year, at its first meeting following the Annual Session, elect its own chairman and secretary.

The Secretary-Treasurer of the Association, within one month after the Annual Session, shall write the Committee Chairman of the preceding year, to call a meeting for organization and consideration of any business.

Prior to the annual meeting, each of these committees

shall submit a written report to the Council on the work of the committee during the preceding year.

Sec. 2. The Executive Committee shall consist of the President, the President-Elect, the Secretary-Treasurer, the Speaker of the House of Delegates, the Chairman of the Council, the Editor and one other member of the Council appointed by the chairman thereof.

This committee shall elect its own chairman.

This committee shall meet on call of its chairman, or upon written request of two of its members. It shall consider all matters brought to its attention by the Secretary-Treasurer or others of its members, and shall make recommendations for proper action thereon to the Council. It shall take definite action on its own account only in minor matters, or only when the interests of the Association would be apt to be unfavorably involved if no action were taken until the next meeting of the Council.

Sec. 3. The Committee on Scientific Work shall consist of the Secretary-Treasurer, the secretaries of the sections on general surgery and general medicine and three other members to be elected by the Council, each of these three members to serve three years, one being elected each year. The Secretary-Treasurer shall be chairman. This Committee shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the Council. At least thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers and discussions shall be presented.

Sec. 4. The Committee on Public Policy shall consist of three members, and the President and the President-Elect.

There shall be a joint meeting of this committee and an auxiliary committee, as provided for in Chapter XI, Section 10 of these By-Laws, held annually, as may be ordered on the call of the chairman or three members of the State Committee. The chairman of the State Committee, and in his absence, the President, shall act as chairman at the joint committee meetings.

Under the direction of the State Committee, the joint committee shall represent the Association in securing and enforcing legislation in the interest of public health and of scientific medicine.

Sec. 5. The Committee on Publication shall consist of three members, and the editor, and the Secretary-Treasurer.

The Committee on Publication shall have referred to it all reports on scientific subjects, and all scientific papers and discussions heard before the Association. It shall be empowered to curtail, abstract or reject papers and discussions. The committee shall have authority to arrange for the publication and distribution of all publications of the Association, subject to the approval of the Council.

Sec. 6. The Committee on Medical Defense shall prepare plans and establish rules for the defense of members of this Association against whom suits for alleged malpractice have been brought.

It may assist in the defense of any member sued for alleged malpractice if the member was in good standing and had complied with the rules of the committee when the service on account of which suit was brought was rendered.

Sec. 7. The Committee on Medical Education and Hospitals shall serve in this state for the Council on Medical Education and Hospitals of the American Medical Association, and shall have referred to it all questions pertaining to hospitals and medical education.

Sec. 8. The Committee on Medical Economics shall investigate matters affecting the economic status of physicians and shall report annually to the House of Delegates such recommendations as may, in its judgment, seem proper.

Sec. 9. Reports of the standing and special committees shall be published in the official journal of the month preceding the date of the Annual Session of this Association, or in a Convention Bulletin, and these reports must be in the hands of the Secretary sixty days in advance of the Annual Session.

B Chapter XI—County Society Membership

Section 1. All county societies now in affiliation with the State Association or those that may hereafter be organized in this state, which have adopted principles of organization not in conflict with this Constitution and By-Laws shall, upon application to the Council, receive charters from this Association, provided that their Constitutions and By-Laws shall have been submitted to the Council and received its approval.

Sec. 2. Only one component medical society shall be chartered in each county.

Sec. 3. Each county society shall judge of the qualifications of its members, subject to review and final decision by the Council of the State Association. Every reputable and legally qualified physician who does not practice, nor profess to practice sectarian medicine, and who is a bona-fide resident of the same county, shall be eligible for election to membership.

A member of a component society whose license has been revoked shall be dropped from membership automatically as of the date of revocation.

The Council of the State Association shall have final authority to expel a member should a component county society fail to do so after being so requested by the Council.

A member of a component county society, practicing in one county and residing in a different county, shall have the right to choose with which of the two component county units he will affiliate as an active member.

A physician living near a county line may hold his membership in that county most convenient for him to attend, on permission of the component society in whose jurisdiction he resides.

Sec. 4. Any physician who may feel aggrieved by the action of the society of his county in suspending or expelling him, shall have the right to appeal to the Council, whose decision shall be final. A county society shall at all times be permitted to appeal or refer questions involving membership to the Council of the State Association for final determination.

Sec. 5. In hearing appeals the Council may admit oral or written evidence as in its judgment will most fairly present the facts, but in the case of every appeal both as a board and as individuals, the Councilors shall, preceding all such hearings, make efforts at conciliation and compromise.

Sec. 6. When a member in good standing in a component county society moves to another county in this state, he shall be given a written certificate of these facts by the Secretary of his society, without cost, for transmission to the Secretary of the society in the county to which he moves. Pending his acceptance or rejection by the society in the county to which he removes such member shall be considered to be in good standing in the county society from which he was certified and in the State Association to the end of the period (respectively) for which his dues have been paid.

Sec. 7. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county.

Systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it includes every eligible physician in the county.

Sec. 8. At some meeting at least sixty days in advance of the Annual Session of this Association, each component county society shall elect one or more delegates and an equal number of alternates therefor to represent it in the House of Delegates of this Association, in accordance with Chapter III, Section 2, of these By-Laws. The Secretary of each county society shall send a list of such delegates and alternates to the Secretary of this Association at least thirty days before the Annual Session. Representation in the House of Delegates shall be contingent on compliance with the foregoing provisions, and the Credentials Committee shall demand compliance therewith.

A delegate who has answered the roll call at a meeting of the House of Delegates cannot have an alternate sub-

stitute for him later on, if the delegate be absent for any reason.

Nor can an alternate or alternates who have answered in lieu of a delegate or delegates, who were absent for any reason, be displaced as a member of the House if such delegate or delegates appear later and wish to function as delegates.

Sec. 9. The Secretary of each county society shall keep a roster of its members, and if no such list is printed by the State Board of Medical Examiners, a list of non-affiliated physicians, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this state, and such other information as may be deemed necessary by Council. He shall send a copy of the program of each county meeting to his district Councilor and to the Secretary-Treasurer.

Sec. 10. The Council of each county society shall appoint or elect three of its members as a member of its auxiliary Committee on Public Policy, designating one as chairman, and the county society secretary shall send the names, and addresses at once to the Secretary of this Association. The Committee on Public Policy of this Association shall formulate the duties of this auxiliary committee and supply each member with a copy. The auxiliary committeemen shall be accountable to their county societies and to the Council for prompt response to and continued cooperation with the Committee on Public Policy of this Association.

B Chapter IX—Ethics

The ethical principles governing the members of the American Medical Association shall govern members of this Association.

B Chapter X—Rules of Order

The deliberations of this Association shall be conducted in accordance with parliamentary usage as defined in Roberts' Rules of Order.

B Chapter XII—Amendments

Section 1. These By-Laws may be amended at any Annual Session by a majority vote of the delegates present at that session, if the proposed amendment has been properly submitted to the House of Delegates and has lain on the table for one day.

Sec. 2. Upon the adoption of this Constitution and these By-Laws, all previous Constitutions and By-Laws are thereby repealed.

III

This Section III contains isolated proposed amendments to the present Constitution and By-Laws, introduced through the Committee on Revision by different members of the California Medical Association in the House of Delegates at the 1927 annual session at Los Angeles, or reintroduced at that time, as submitted in previous annual sessions.

(For convenience of reference the proposed Articles and Chapters belonging to this set III are indicated by the letter C.)

CONSTITUTION

C Article IV—House of Delegates

Section 5. Each component county society shall be entitled to be represented by one delegate and one corresponding alternate and also one delegate and one corresponding alternate for every fifty members as of the first day of October of the preceding year, and one delegate and one corresponding alternate for each fraction of fifty members thereof.

Sec. 6. Each delegate or alternate serving as delegate, who shall attend an annual convention and personally be present and answer roll call for two regular sessions

of the House of Delegates, shall be paid his railroad and pullman fare to and from home to the convention.

C Article VI—Officers

Section 1. The officers of this Association shall be a President, a President-Elect, a Vice-President, seven Trustees, a Speaker and Vice-Speaker of the House of Delegates, and fifteen Councilors, of whom one shall be elected from each of the nine Councilor districts and six at large, two of whom shall be elected from the County of Los Angeles, and four from the remainder of the state. Not more than three Councilors shall be elected from any one Councilor district. These officers, other than trustees, shall be elected by the House of Delegates at the time and in the manner provided in this Constitution and By-Laws.

Sec. 2. The officers, except the Councilors and trustees, shall be elected annually. The terms of the elected Councilors shall be for three years. The terms of the trustees shall be two for three years, two for five years, one for seven years, and two for nine years. The President and the Secretary shall be elected annually. The Council shall elect the trustees at its first meeting held after the annual meeting of the Association. All trustees shall hold office until their successors are elected.

Sec. 3. The Association shall elect a President for the next succeeding year who shall remain President-Elect for one year preceding his assumption of the office of President. While President-Elect, he shall be ex-officio a member of the Council and of all other bodies and committees of which the President is an ex-officio member. The Speaker and Vice-Speaker, who may or may not be members of the House of Delegates, shall be elected for the term of one year, commencing on the adjournment of the annual meeting at which elected.

Sec. 4. The component County Societies shall be grouped in nine Councilor districts. Six Councilors shall be elected at large; two of whom shall be elected from the County of Los Angeles and four from the remainder of the state. Each Councilor district shall be entitled to be represented by one district Councilor for every five hundred members of the Association composing the component county society or societies of such Councilor district and by one district Councilor for any fraction thereof; provided that each Councilor district shall be entitled to be represented by one district Councilor.

Sec. 4a. The component county societies shall be grouped in nine Councilor districts. One Councilor shall be elected from each Councilor district by the delegates elected by the several component county societies forming such Councilor districts, and six Councilors shall be elected at large, two of whom shall be elected from the County of Los Angeles and four from the remainder of the State. Not more than three Councilors shall be elected from any one Councilor district. All Councilors shall serve for a term of three years. As the terms of the Councilors in office expire, elections to fill the vacancies thus created shall be had and for such terms that as soon as may be, the terms of one-third of the Councilors elected from Councilor districts and one-third of the Councilors elected at large shall expire annually.

C Article VII—Officers

Section 1. Any member of the Association in good standing shall be eligible to become an officer to the Society; provided, however, that no member who holds any State office from the State of California or any Federal office from the United States of America shall be eligible, and in the event that any officer during his term shall become a holder of any such office his term as an officer of this Association shall be forthwith concluded, and his office become vacant; provided however, that the provisions thereof shall not affect the term or eligibility for the remainder thereof, of any officer of the Association in office at the time of the adoption of this amendment.

C Article VII—Council

The Council shall consist of the elected Councilors and ex-officio the President, the President-Elect, the Vice-President, the Speaker and the Vice-Speaker of the House of Delegates. Five Councilors shall constitute a quorum.

Section 3. The Council at the first meeting thereof

held after the adjournment of the last session of the House of Delegates at the regular annual meeting thereof shall appoint the Secretary and the Editor and a Field Secretary, who shall act under the direction of the Secretary and whose duties shall particularly concern the economic and scientific problems and welfare of the several component county medical societies and the members thereof, each said officer shall serve for the term of one year.

C Article IX—Funds and Expenses

Funds shall be raised by equal per capita assessments upon the active members of each county society, and by such donations, voluntary subscriptions, endowments and gifts, proceeds from publications, and such other earnings as are acceptable to the Council. The amount of assessments shall be fixed by the Board of Trustees. The fiscal year of the society shall be from January 1 to December 31. The number of members in good standing in each county society on the first day of October of each year shall be taken as the basis for the assessment for the following fiscal year.

C Article XIII—Trustees

Section 1. The Board of Trustees shall consist of seven members, who shall hold, administer, manage and control all funds and properties of the Association.

Sec. 2. No person shall expend or use for any purpose money belonging to the Association without the approval of the Board of Trustees.

Sec. 3. All acts of the Council involving expenditure, appropriation, or use in any manner, of money, or the acquisition or disposal in any manner, of property of any kind belonging to the Association, must be approved by the Board of Trustees.

Sec. 4. The Board of Trustees may formulate rules governing the expenditure of money to meet the necessary running expenses and fixed charges of the Association, as well as such other rules governing its actions as it may deem necessary or desirable. Four members of the board shall constitute a quorum for the transaction of business. The board shall elect its own chairman and vice-chairman, but the Secretary of the Association shall be the secretary of the board.

Sec. 5. The Trustees shall hold quarterly meetings at such time and place as the board shall designate, but special meetings may be called at any time by the President, and shall be called by him, on the request of two or more trustees.

Sec. 6. The Trustees shall make an annual report of the financial and general status of the Association at the annual meeting of the Association, and to the Council at its fall meeting and at such other times as the Council may request.

Sec. 7. Absence of a trustee from three consecutive meetings of the Board of Trustees, without an excuse satisfactory to the Council, shall be interpreted as a resignation from the Board of Trustees. Upon receiving notice from the Secretary of such absence, the Council shall proceed to elect a Trustee to fill the vacancy.

Sec. 8. The Council may, at any time it deems it necessary or advisable, direct the incorporation of said Board of Trustees under the laws of the State of California, and the Trustees shall thereupon form and organize such corporation.

C Article XIV—Office

The main office of the Association shall be fixed and located at the City and County of San Francisco, State of California; all books and records of the Association shall be kept at such office and it shall be the office of the Secretary and the Editor.

BY-LAWS

C Chapter III—House of Delegates

Sec. 3. The Speaker shall preside at the meetings of the House of Delegates and shall perform such duties as custom and parliamentary usage require. He shall have the right to vote only when his vote shall be the deciding vote. The Vice-Speaker shall officiate for the Speaker in the latter's absence or at his request. In case of death, resignation, or removal of the Speaker, the Vice-Speaker shall officiate during the unexpired term.

Sec. 10. The Speaker of the house or in the absence of such officer, the chairman of the Council, prior to

each annual session shall appoint a credentials committee, consisting of two members of the House of Delegates and the Society Secretary ex-officio. The function of the committee shall be to register and to pass on the credentials of all members of the House of Delegates, and submit to the House of Delegates a written report or reports, giving the names of all members eligible thereto. Provided, however, that the members seated by the committee shall have the right through two-thirds vote to amend the report or reports of the credentials committee.

Sec. 11. No delegate or alternate whose name has not been certificated in writing as such, by his county unit, through the President and Secretary, and filed in the office of the State Secretary at least fifteen days subsequent to the first of March shall be entitled to a seat in the House of Delegates. The State Secretary shall notify each delegate of his election and forward certificate credentials with notice of Councilor's rulings governing election and penalty for non-attendance; and no delegate absent without prior notification to his County Secretary or Secretary of this Association shall be eligible to a seat in the House of Delegates the following year; and it shall be the duty of the Secretary to mail a list of all absent delegates to the proper county units.

C Chapter IV—Duties of Officers

Sec. 3. The Secretary shall attend the general meetings of the Association, the meetings of the House of Delegates and of the Council, and the Trustees, and shall keep the minutes of their respective proceedings. He shall be ex-officio Secretary of the Council. He shall be the custodian of all records, books and papers belonging to the Association, and shall keep account of and promptly turn over to the depositary all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the annual meetings. He shall, with the co-operation of the secretaries of the county societies, keep an approved register of all the members of the Association by counties, noting on each his status in relation to his county society. He shall aid the Councilors in the organization and improvement of the county societies and in the extension of the usefulness of this Association. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall employ such assistants as may be authorized by the Council and shall make an annual report to the House of Delegates. He shall supply each county society with the necessary blanks for making its annual report; he shall keep an account with the county societies, charging against each society its assessment, and collect the same. He shall in like manner keep an account with each member as to any assessment or assessments levied directly upon each member, and collect the same. As chairman of the committee or scientific program, he shall prepare and issue all programs. He shall perform such other duties as the Council may direct. He shall be appointed by and have his compensation fixed by the Council.

Sec. 4. The depositary of the Association shall be a bank or trust company selected by the Trustees. All funds received for the Association by any officer or agent thereof shall be promptly paid to the Secretary and by him deposited with the depositary. The depositary shall pay out the money of the Association only upon check or draft signed by the Secretary and countersigned by the chairman or other designated member of the Board of Trustees. The Secretary shall issue such checks or drafts only upon vouchers approved by the Auditing Committee and signed by all the members thereof. A revolving fund in such amount as may from time to time be fixed by the Council shall be left with the Secretary, from which fund immediate cash demands may be paid.

C Chapter V—Council

Section 1. The Council shall meet on the day preceding the annual meeting of this Association and daily during its sessions, and it shall also hold at least three other meetings during the year, at least one of which shall be held in the southern part of the State. Special meetings may be called by the chairman at any time, and he shall call a special meeting upon the written request of at least three Councilors, provided written notice of the

time, place and object of the proposed special meeting be given by the Secretary to all members of the Council not less than seven days prior to such meeting. At the meeting held on the last day of the annual meeting of the Association the Council shall reorganize and shall elect a chairman for the ensuing year. The Council shall fill all vacancies in the Board of Trustees. The chairman shall make an annual report to the House of Delegates.

Sec. 2. The Council shall have power to do and perform all acts, transact all business for and on behalf of the Association other than those powers and duties herein or in the Constitution vested in the Board of Trustees. The Council shall also have power to delegate any of its powers as it may determine to the Executive Committee hereinafter provided for.

Sec. 13. The Council shall appoint an attorney-at-law in good standing, practicing his profession in the northern section of California, to act as general attorney for the Association, and an attorney practicing his profession in the southern section of California, to act as assistant general attorney. The general attorney shall so far as possible, attend the sessions of the Council, the Executive Committee, and of the House of Delegates, and shall generally advise and counsel with the Councilors and officers of the Association. The general attorney or assistant general attorney shall have charge of all actions for malpractice against individual members of the Association on behalf of such members, whenever their defense is authorized by the Association, through the Council, the Executive Committee or the Secretary thereof.

Sec. 15. The Executive Committee of the Council shall consist of the President, the President-Elect, the Vice-President of the Association, the chairman of the Council, the chairman of the Auditing Committee, the Secretary and the Editor. The committee shall elect its own chairman, and the Secretary shall act as Secretary thereof. It shall keep a record of its proceedings and report them to the Council, and all of its proceedings shall be subject to the approval of the Council.

C Chapter VII—Committees

Section 1. The standing committees of this Association shall be as follows:

Sec. 7. (f) A Committee on Hospitals.

The Committee on Hospitals shall co-operate in this State with the Council on Medical Education and Hospitals of the American Medical Association and shall have referred to it all questions pertaining to hospitals.

C Chapter VII

Sec. 8. A physician who states he has his major office for professional practice in one county, even though his legal home or residence may be in some other county, may have the option of joining or maintaining his membership in the county medical society of the county in which he has his major office for professional work, or in the county medical society in which he has his legal home or residence.

IV

This Section IV contains a suggested revision of portions of our present Constitution and By-Laws, prepared by the counsel of the California Medical Association (Mr. Hartley Peart), and was introduced in the House of Delegates through the Committee on Revision at the 1927 annual session at Los Angeles.

(For convenience of reference all the proposed Articles of the Constitution belonging to this set IV are indicated by the letter D.)

CONSTITUTION

D Article I—Name and Objects

Section 1. The name of this Association is the "California Medical Association."

Sec. 2. The purposes of this Association are to promote the art and science of medicine and the betterment

of public health. Contributing to this end it shall endeavor to federate and bring into one organization the entire medical profession of California, and to unite with similar societies of other States to form the American Medical Association and such regional associations as its House of Delegates may deem advisable; to extend medical knowledge and advance medical science; to elevate the standard of medical education and practice, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of medicine and public health, so that the profession may become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in the prolongation of and adding comfort to life. This Association as a constituent unit of the American Medical Association hereby recognizes and pledges its support to the Constitution and By-Laws of the American Medical Association and rulings by competent authority thereof.

D Article II—Component Societies

Component Societies shall consist of the county medical societies of the several counties of the State of California, whose constitutions, by-laws, procedure, rulings and activities conform to and are not in conflict with the constitution, by-laws, procedure, rulings, and activities of this Association and which hold unrevoked charters from this Association.

D Article III—Membership

Section 1. The members of the Association shall consist of the following:

(a) Active members who shall comprise all of the active members of each component county medical society. An active member shall have the right of suffrage and all other rights and privileges of the Association.

(b) Affiliate members shall be elected from those Doctors of Medicine engaged in teaching or research work or holding position in federal service or otherwise, who are not licensed to practice medicine and surgery in the State of California and hence are ineligible to active membership. These members shall have all the rights, and privileges of active members except the right to vote or hold office. Their dues to the State Association shall be one-half of the dues of active members, and their dues to their county society shall be fixed by such county society.

(c) Retired members of the California Medical Association may be elected by the House of Delegates; or by the Council, if the nomination is officially sent to the Council by a competent county society.

D Article XII—Incorporation

To aid in carrying out the object of the Association, the House of Delegates at any session of any regular or special meeting thereof, may by a two-thirds vote of the members thereof present and acting, authorize, empower and direct the Council to cause the formation and organization of a non-profit corporation under the laws of the State of California, without capital stock, with such incorporators, name, purposes, objects, principal place of business, term, number of directors and directors to serve for the first year and until their successors are elected, and with such provisions regarding the voting power and property rights and interests of the members of the corporation and such further provisions in the Articles of Incorporation thereof, and with By-Laws and composed of such members representing this Association as the Council shall prescribe, fix and determine. The House of Delegates may at its option in connection with the granting and giving of such authority, power and direction to the Council, prescribe, fix and determine any or all of such matters pertaining to the said corporation, its Articles of Incorporation, and any provision thereof, By-Laws and membership, and its action thereof shall bind the Council; and the House of Delegates at any session of any regular or special meeting thereof may by a two-thirds vote of the members thereof present and acting,

authorize, empower and direct the Council to grant, assign, transfer, convey and deliver to the said corporation upon the formation thereof without any consideration therefor, any property, real or personal, of the Association, which authorization, power and direction may be given prior or subsequent to the formation and organization of said corporation.

D Article IV—House of Delegates

Change to read as follows:

Section 1. The House of Delegates shall consist of (1) Delegates elected by the component county medical societies, (2) the Councilors, and (3) ex-officio the President, President-Elect and Vice-President of the Association, and the Speaker of the House of Delegates.

Sec. 2. The House of Delegates shall be the legislative body of the Association. It shall issue charters to county medical societies which it deems and finds eligible therefor, and may, after notice to any component society and hearing, revoke any such charter for cause. It shall form and group component county societies into Councilor districts. It shall at the regular annual meeting thereof elect the President-Elect, the Vice-President, and the Speaker of the House of Delegates, and in accordance with Constitution and By-Laws of the American Medical Association, it shall elect the Delegates of the Association to the House of Delegates of the American Medical Association.

Sec. 2. The House of Delegates shall be the legislative body of the Association. It shall at the regular annual meetings thereof elect the President-Elect, the Vice-President, and the Speaker of the House of Delegates, and in accordance with the Constitution and By-Laws of the American Medical Association, it shall elect the Delegates of the Association to the House of Delegates of the American Medical Association.

Sec. 3. All sessions of the House of Delegates, other than executive sessions thereof, shall be open to all members of the Association.

Sec. 4. An alternate Delegate eligible to serve if any Delegate of the delegation of a component county society is disqualified or fails to attend the meeting, shall be elected for each Delegate. Delegates and alternates shall be elected by the several component county societies respectively for a term of two years; one-half of the delegates and alternates representing each county society as near as may be shall be elected each year.

D Article V—Meetings

Section 1. The Association shall hold a regular meeting annually consisting of general sessions and section meetings for all members. Such meetings shall be held at such time and place as the Council shall fix and notice thereof and of the time and place of each general session shall be published in the monthly publication of this Association in at least two regular issues thereof preceding such regular meeting.

The general sessions and section meetings shall be devoted to addresses and papers relating to the purpose of the Association, and to discussion and consideration thereof.

Sec. 2. Special meetings of the Association may be called by the House of Delegates or the Council and if so called shall be held at such time and place as the Council shall fix and the same notice shall be given thereof as for the regular annual meeting.

Sec. 3. The House of Delegates shall hold a regular meeting annually consisting of at least two sessions, the second whereof shall be at least twenty-four hours subsequent to the convening of the first session. The regular annual meeting of the House of Delegates shall be held at the same place as the regular annual meeting of the Association, and the Council shall fix the number of and times for the sessions thereof. The same notice shall be given of such meetings and the sessions thereof as that prescribed for the regular annual meeting of the Association.

Sec. 4. Special meetings of the House of Delegates may be called at any time by a two-thirds vote of the members of the Council at any regular or special meeting thereof or by written call filed with the Secretary in the office of the Association signed by one-third of the members of

the House of Delegates. Upon the filing of such call with the Secretary, the Council shall within thirty days thereafter fix the time and place for the holding of such special meeting and cause written notice thereof to be sent by the United States mail, postage fully prepaid to every member of the House of Delegates addressed to him at his office or place of residence as shown by the records of the Secretary's office, at least fifteen days prior to the date of meeting.

Sec. 5. Thirty-five members shall constitute a quorum of the House of Delegates. All meetings shall be held within the State of California.

D Article VI—Officers

Section 1. The officers of the Association shall be a President, a President-Elect, a Vice-President, a Speaker of the House of Delegates, a Secretary, an Editor and fifteen Councilors.

Section 1. The officers of the Association shall be a President, a President-Elect, a Vice-President, a Secretary and an Editor and six Councilors at large and district Councilors as hereinafter provided.

Sec. 2. The House of Delegates at the regular annual meeting thereof shall elect the President-Elect to serve until the adjournment of the final session of the House of Delegates at its next regular annual meeting. At the conclusion of the final session of the House of Delegates at the next regular annual meeting, the President-Elect shall assume the office of President, and serve as such for the term of one year thereafter. The House of Delegates shall at the regular annual meeting thereof elect a Speaker of the House of Delegates, to serve for the term of one year. The President, President-Elect, and Speaker of the House of Delegates shall be ex-officio members of the Council.

Sec. 2. The House of Delegates at the regular annual meeting thereof shall elect the President-Elect to serve until the adjournment of the final session of the House of Delegates at its next regular annual meeting. At the conclusion of the final session of the House of Delegates at the next regular annual meeting, the President-Elect shall assume the office of President, and serve as such for the term of one year thereafter. The House of Delegates shall at the regular annual meeting thereof elect a Vice-President to serve for the term of one year. The President, President-Elect and Vice-President shall be ex-officio members of the Council.

Sec. 2. The House of Delegates at the regular annual meeting thereof shall elect the President-Elect to serve until the adjournment of the final session of the House of Delegates at its next regular annual meeting. At the conclusion of the final session of the House of Delegates at the next regular annual meeting, the President-Elect shall assume the office of President to serve as such for the term of one year thereafter; provided, however, that the President-Elect shall act for the President in his absence or disability and if the office of President become vacant, the President-Elect shall then succeed to the Presidency to serve as such for such unexpired term and for the term of one year thereafter. The House of Delegates shall at the regular annual meeting thereof elect a Speaker of the House of Delegates to serve for the term of one year. The President, the President-Elect and the Speaker of the House of Delegates shall be ex-officio members of the Council.

Sec. 3. The Council at the first meeting thereof held after the adjournment of the last session of the House of Delegates at the regular annual meeting thereof shall appoint the Secretary and the Editor each to serve for the term of one year.

Sec. 3. The Council shall appoint the Secretary and the Editor and shall appoint and engage the Secretary and the Editor and may make such arrangements for such term of years as the Council shall deem expedient, not to exceed five years.

Sec. 5. The term of office of the Vice-President and the Speaker of the House of Delegates and the Councilors (which terms are herein generally stated to be one year or three years), shall commence immediately upon the adjournment of the last session of the regular annual meeting of the House of Delegates at which such officer

was elected and shall continue up to the adjournment of the corresponding session of the year in which the term of office ends. Every officer shall hold office until his successor is elected, and installed in office. No delegate during his term of service as such shall be eligible as President-Elect or Vice-President, but shall be eligible for the office of Councilor, and no person shall be eligible for any office other than Secretary and Editor who has not been a member for two years next preceding his election.

Sec. 5. The term of office of the Speaker of the House of Delegates and the Councilors (which terms are herein generally stated to be one year or three years) shall commence immediately upon the adjournment of the last session of the regular annual meeting of the House of Delegates at which such officer was elected and shall continue up to the adjournment of the corresponding session of the year in which the term of office ends. Every officer shall hold office until his successor is elected, and installed in office. No Delegate during his term of service as such shall be eligible as President-elect or as Vice-President but shall be eligible for the office of Councilor, and no person shall be eligible for any office other than Secretary or Editor who has not been a member for two years next preceding his election.

Sec. 6. Neither the Secretary nor the Editor shall engage in the practice of Medicine while acting as Secretary or Editor respectively; provided that if the Council by a two-thirds vote of all of its members declares that an emergency exists in the matter of securing a competent or desirable Secretary or Editor, then a Secretary or Editor engaged in active practice may be selected for a period of not exceeding one year.

Sec. 6a. No person shall be eligible to the office of Secretary or Editor who does not hold the degree of Doctor of Medicine, but membership in this Association shall not be a necessary qualification for the office of either Editor or Secretary.

D Article VII—Council

Section 1. The Council shall consist of elected Councilors and ex-officio the President, the President-Elect, the Vice-President and the Speaker of the House of Delegates. At the first meeting thereof held after the adjournment of the last session of the House of Delegates at the regular annual meeting thereof, the Council shall organize by the election of one of the Councilors as chairman of the Council who shall serve as such up to the adjournment of the last session of the next succeeding regular annual meeting of the House of Delegates. Nine Councilors shall constitute a quorum.

Sec. 2. Subject only to provisions of this Constitution and the By-Laws and all resolutions and enactments of the House of Delegates, the Council shall be vested with full and complete power and authority to manage, control, use, invest, reinvest, lease, make contracts in respect of, and concerning, convey, give, grant, transfer, or otherwise dispose of all property and assets of whatever kind or nature owned by the Association, and shall also be vested with full and complete power and authority to do and perform all acts and to transact all business for and on behalf of the Association and to manage and conduct all the work and activities of the Association in carrying out the purposes thereof. Through its Chairman, it shall submit a budget for the ensuing year to the House of Delegates, and it shall make a report of its proceedings to the House of Delegates at the regular annual meeting thereof.

Sec. 2. Subject only to provisions of this Constitution and the By-Laws and all resolutions and enactments of the House of Delegates, the Council shall be vested with full and complete power and authority to manage, control, use, invest, reinvest, lease, make contracts in respect of, and concerning, convey, give, grant, transfer or otherwise dispose of all property and assets of whatever kind or nature owned by the Association and shall also be vested with full and complete power and authority to do and perform all acts and to transact all business for and on behalf of the Association and to manage and conduct all the work and activities of the Association in carrying

out the purposes thereof. It shall issue charters to County Medical Societies which it deems and finds eligible therefor and may after notice to any component Society and hearing, revoke such charter for cause. Through its chairman, it shall submit a budget for the ensuing year to the House of Delegates, and it shall make a report of its proceedings to the House of Delegates at the regular annual meeting thereof.

Sec. 3. The Council at the first meeting thereof held after the adjournment of the last session of the annual meeting of the House of Delegates, shall appoint an Auditing Committee of three of its members and the chairman thereof to serve for the term of one year. The Council at said meeting shall appoint for one year and fix the compensation of the following officers: A Secretary, who shall be the chief executive officer of the Council and of the Association; an Editor of all publications of the Association; a General Counsel, and an Assistant General Counsel. The Counsel may employ other agents and representatives on an annual basis or for lesser periods, provide their duties and fix their compensation. The term of one year herein provided shall commence immediately on appointment and continue up to the first meeting of the Council held after the adjournment of the last session of the next regular meeting of the House of Delegates. In the event that a vacancy shall occur in the office of Councilor, the Council may appoint a Councilor to serve until an election is held at the next regular meeting of the House of Delegates to fill such unexpired term.

Sec. 4. The Council shall have the authority to delegate such of its powers and duties to the Executive Committee as it shall from time to time determine.

Sec. 5. The Council shall hold such meetings and perform such other duties as are provided by the By-Laws or as the House of Delegates may by resolution prescribe.

D Article VIII—Executive Committee

The Executive Committee shall consist of the President, the President-Elect, the Speaker of the House of Delegates, the chairman of the Council, the chairman of the Auditing Committee, the Secretary and the Editor. The Executive Committee shall elect its own chairman and the Secretary shall act as the Secretary thereof. Four members shall constitute a quorum. The Executive Committee shall aid and assist the officers and the Council in the transaction of the business of the Association in the intervals between the meeting of the Council. It shall have such powers and duties as the Council shall from time to time determine. It shall keep a record of its proceedings and report them to the Council and all of its proceedings shall be subject to the approval of the Council.

D Article IX—Funds and Assessments

Section 1. Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates. Funds may also be raised by voluntary contributions, from the Association's publications and in any other manner approved by the House of Delegates. The Council shall submit an annual budget to the House of Delegates. All resolutions providing for appropriations approved by the Council shall be included in the annual budget.

Sec. 2. No person other than a member in good standing shall have any interest in the property of the Association and the interest of any member shall cease when he ceases to be a member of the Association. If any member shall resign or otherwise cease to be a member of the Association, all of his interest in and to all property and all privileges of the Association shall cease and such cessation of membership shall operate as a release and assignment to the Association of all the right, title and interest of such member in and to all of the property and privileges of the Association.

D Article XIII—Referendum

Section 1. The House of Delegates at any session thereof at any regular or special meeting may by a two-thirds vote of the members present and acting or the

Council at any meeting thereof may by a two-thirds vote of all of its members, submit any question, matter or proposition to all the members of the Association by mail and a majority of the votes cast by mail by members of the Association shall be final and bind and govern the Association upon the question, matter or proposition so submitted to the membership.

Sec. 2. The Council shall prescribe, fix and determine the form of the question, matter or proposition so referred to the members and the time within which such vote shall be cast. All votes must be in writing and mailed or delivered to the Secretary's office. The canvass thereof shall be under the direction of the Council.

Sec. 3. The action of the House of Delegates shall be final and binding upon all members of the Association unless a referendum as herein provided, is voted by the House of Delegates at the same meeting thereof at which the action was taken or the vote or resolution was had or adopted, or unless the Council by a two-thirds vote of all its members, shall within the period of thirty days after adjournment of such meeting of the House of Delegates vote to hold a referendum on such action, vote or resolution of the House of Delegates.

D Article XIV—Seal

The Association shall have an association seal consisting of a circle having on the circumference the words "California Medical Association, Eureka, 1865," with such further emblems, figures and words as the Council shall prescribe.

D Article XV—Amendments

Any member of the House of Delegates at any session or any regular annual meeting thereof may present an amendment or amendments to any article or articles or any section or sections of any article of this constitution. Such proposed amendment or amendments must be in writing and shall be filed with the Secretary and shall thereafter be published at least twice in separate issues of the monthly publication of this Association. At the first regular meeting of the House of Delegates thereafter held, such proposed amendment or amendments may be submitted to the House of Delegates and if two-thirds of the Delegates present and voting, vote in favor thereof, the same shall be adopted. The House of Delegates may, however, by majority vote continue the consideration of and vote upon any proposed amendment or amendments, to the next succeeding annual meeting, and in such event the same publication thereof shall be made as above provided. At the time that any proposed amendment is under consideration by the House of Delegates for adoption or rejection, the House of Delegates may by two-thirds vote of members thereof present and acting adopt amendments to the proposed amendment consistent with and germane to the purpose thereof. And the adoption of any amendment or amendments to the proposed amendment by the House of Delegates by such vote shall be conclusive that the same is or are consistent with and germane to the purpose of such proposed amendment; subject only to referendum as herein elsewhere provided.

D Article XV—Enabling Amendment

Amend Article XII of the Constitution relating to Amendments by striking out the existing article and substituting in lieu thereof, the following:

The House of Delegates at any annual meeting including the meeting at which this amendment is adopted may amend any article of this constitution by a two-thirds vote of the delegates present and acting; provided that any amendment to the constitution is submitted in writing and laid on the table for twenty-four hours previous to being considered and acted upon.

D Article XV

Repeal of All Provisions of Present Constitution

Section 1. All articles and all sections of all articles of the existing Constitution are hereby repealed.

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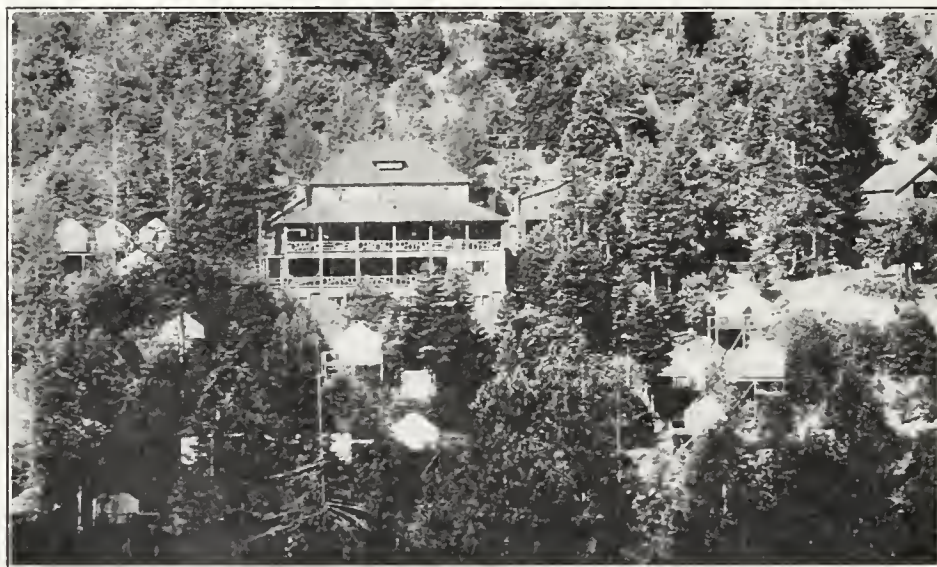
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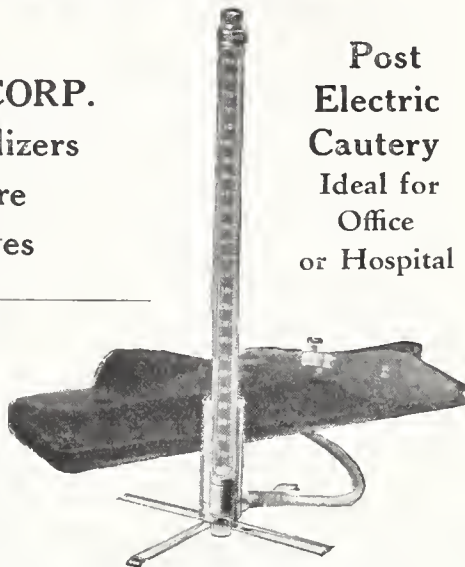
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BOOKS RECEIVED

Manual of Psychiatry. By Aaron J. Rosanoff, M. D. (Sixth edition). Review copy by the courtesy of John Wiley & Sons, Inc., New York.

How to Make the Periodic Health Examination. By Eugene Lyman Fisk, M. D., and J. Ramser Crawford, M. D. Review copy by the courtesy of The Macmillan Company, New York.

City Health Administration. By Carl E. McCombs, M. D. Review copy by the courtesy of The Macmillan Company, New York.

The Human Body in Pictures. By Jacob Sarnoff, M. D. Review copy by the courtesy of the publishers, Physicians and Surgeons Book Co., Brooklyn.

Disorders of the Nose, Throat and Ear. By Aaron Roth, M. D. Review copy by the courtesy of the publishers, Physicians and Surgeons Book Company, Brooklyn.

The Medical Department of the United States Army in the World War, Vol. XI. Prepared under the direction of Major General M. W. Ireland. Review copy by courtesy of Government Printing Office, Washington, D. C.

The Religion Called Behaviorism. By Louis Berman, M. D. Review copy by the courtesy of the publishers, Messrs. Boni & Liveright, New York.

Heart and Athletics. By Felix Deutsch, M. D., and Emil Kauf, M. D. Review copy by the courtesy of the publishers, the C. V. Mosby Company, St. Louis.

Osler's Modern Medicine. By Thomas McCrae, M. D. Third edition. Review copy by the courtesy of the publishers, Messrs. Lea & Febiger, Philadelphia.

Practical Lectures (Second Series, 1924-1926). Delivered under the auspices of the Medical Society of the County of Kings, Brooklyn, New York. Review copy by the courtesy of the publisher, Paul B. Hoeber, Inc., New York.

Lectures on Internal Medicine. By Knud Faber, M. D. Review copy by the courtesy of the publishers, Paul B. Hoeber, Inc., New York.

Pioneer Medicine in Western Pennsylvania. By Theodore Diller, M. D. Review copy by the courtesy of the publishers, Paul B. Hoeber, Inc., New York.

Overcoming Tuberculosis. By Gerald B. Webb, M. D., and Charles T. Ryder, M. D. Review copy by the courtesy of the publishers, Paul B. Hoeber, Inc., New York.

International Clinics: A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Vol. II. Thirty-seventh series, 1927. Review copy by courtesy of the publishers, J. B. Lippincott Company, Philadelphia.

Lippincott's Pocket Formulary. By George E. Rehberber, M. D. Review copy by courtesy of the publishers, J. B. Lippincott Company, Philadelphia.

BOOK REVIEWS

This column is conducted solely in the interests of California and Western Medicine readers. Critical comment, favorable and unfavorable, purely from the standpoint of the interests of the medical reader, will be made about books selected from the larger number acknowledged in the Books Received column. The advertising columns are open to book publishers who wish to make additional statements about their publications.

Diseases of the Digestive Organs, with special reference to their diagnosis and treatment. By Charles D. Aaron. Fourth edition. Illustrated. Pp. 927. Philadelphia: Lea and Febiger. 1927. Price \$11.00.

This well-known work now appearing in its fourth edition, consists of eight hundred seventy-four pages of text, covering the physiology, methods of examining, methods of treating and a complete survey of the various diseases of the gastrointestinal tract.

In its pages there is abundant information which has been brought pretty well up to date, although some of the statements made regarding gastric secretion, the

(Continued on Page 269)

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MYERS: <i>Normal Chest</i>	5.00
FORD: <i>Birth Injuries of the Central Nervous System</i>	4.00
CHESNEY: <i>Immunity in Syphilis</i>	2.50
PLANK: <i>Actinotherapy and Allied Physical Therapy</i>	7.50
MARTIN: <i>Round the World with a Psychologist</i>	2.00
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CROSSEN: <i>Diseases of Women</i> , new ed.....	11.50

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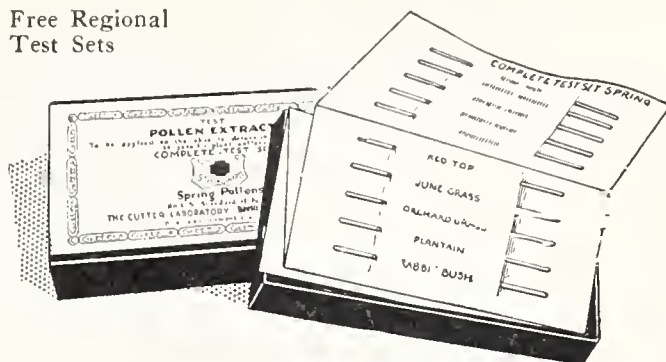
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BOOK REVIEWS

(Continued from Page 266)

control of the pylorus, etc., are hardly in accord with present knowledge.

The chapters dealing with the motor sensory and secretory neuroses are the least convincing.

It is, however, a valuable reference book for anyone handling gastrointestinal conditions.

Preventive Medicine and Hygiene. By Milton J. Rosenau. Fifth edition. Pp. 1458. Illustrated. New York and London: D. Appleton and Company. 1927.

This new edition is shorter by more than one hundred pages than the preceding edition, notwithstanding that the discussion of many topics has been elaborated and an entirely new section on mental hygiene has been included. The abbreviation has been accomplished without the sacrifice of essential matter and is a decided improvement.

The arrangement is similar to that of the previous edition but every chapter has been revised and brought up to date. More attention is paid to such new aspects of preventive medicine as the prevention of cancer, the periodic health examination, etc., and to practical points in public health administration.

The book is well indexed and contains an excellent bibliography. It retains the place of former editions as an excellent reference in which essential facts are adequately presented.

Four Thousand Years of Pharmacy. An outline history of pharmacy and the allied sciences. By Charles H. LaWall. Pp. 665. Illustrated. Philadelphia and London: J. B. Lippincott Company. 1927.

This is a valuable historical reference work with a large list of source literature. In its earlier portions especially, it is quite properly a history of medicine almost as much as of pharmacy. The vast amount of material to be condensed into a six hundred page volume has necessitated a degree of conciseness which gives it more the character of an encyclopedia than of a book for spare hours. Nevertheless, the author has found many opportunities to add color to the work, as when he describes the Egyptian remedy prepared from fly specks and used to prevent babies from crying, the personal characteristics of the piratical inventor of Dover's powder, etc.

The discussion of the present century seems a little weak without the mention of biologics or chemotherapy.

The story of quinidin also would have added to the interest of the cinchona discussion.

Textbook of Biological Chemistry. By James B. Sumner. Pp. 283. New York: The Macmillan Company. 1927.

The little volume, which is well edited and printed, is intended as an introduction to biochemistry for the medical student. It offers a carefully balanced amount of information and will be appreciated by the physician who wishes to revive his knowledge of such important subjects as carbohydrate metabolism, acidosis, vitamins, blood and respiration, enzymes and others.

The value of the book would be greatly enhanced, without adding much to its bulk, if instead of a general description of some of the tests, the exact procedure with quantitative data were given.

Clinical Neurology for Practitioners of Medicine and Medical Students, largely based upon the book by Prof. Hans Curshmann. A free translation with changes and additions. By Edward A. Strecker and Milton K. Meyers. 410 Pp. Philadelphia: P. Blakiston's Son and Co. 1927.

This book, said by the American authors to be a free translation of the German work of Hans Curshmann, is of the sort recommended to the busy practitioner to help him out of his difficulties when confronted with a case of nervous disease. It generally does nothing of the sort. It will serve to refresh his memory if he has at some time before read an adequate textbook or had a proper clinical demonstration of neurology, but if he has not, it will be of little use to him. While in the main accurate, there are some statements to which exception must be taken, notably this one, "The diagnosis of paresis may be made on the spinal fluid findings alone." Had the statement been, "The diagnosis of paresis can never be made on spinal fluid findings alone," no one could have objected.

Dental Materia Medica and Therapeutics. With special reference to the rational application of remedial measures to dental disease. A textbook for students and practitioners. By Hermann Prinz. Sixth edition. Pp. 632, with illustrations. St. Louis, C. V. Mosby Co., 1926.

In this text, first published in 1909, the author has incorporated those changes of the Tenth Decennial Revision of the United States Pharmacopoeia which are of interest to the dental practitioner and student. As in earlier editions, the book is divided into four parts and an appendix. However, in the first part, under the heading of General Therapeutics, the subject of electric ionization has been changed from part three, where it was formerly placed,

(Continued on Page 272)

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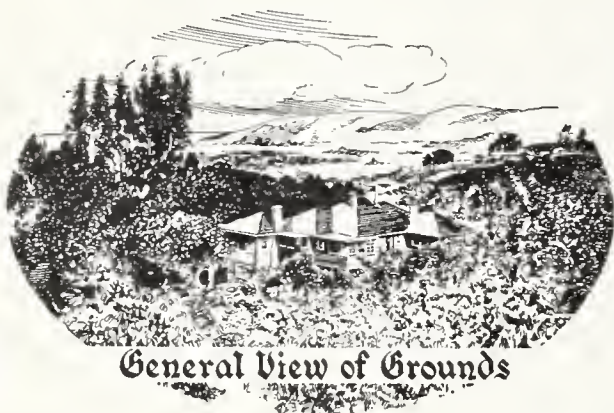
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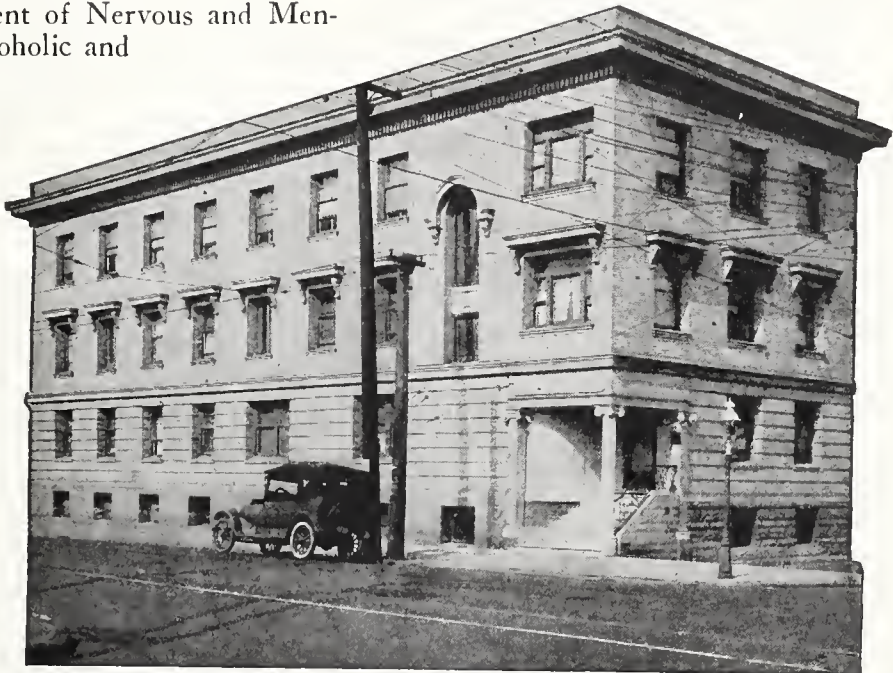
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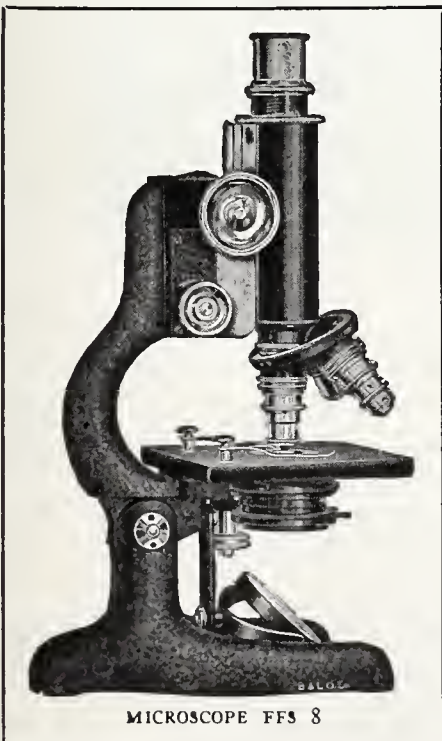
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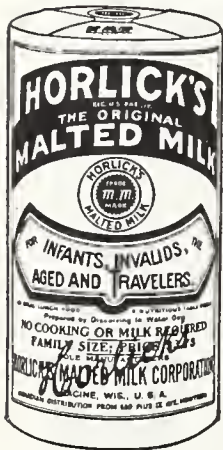
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(Continued from Page 269)

and has been rewritten and brought up to date. The use, and one is almost tempted to say the misuse, of the electric current for pulp diagnosis which was discussed in the fifth edition has been discarded. The descriptions of pulp necrosis and the action of certain antiseptics in the treatment of infected pulp canals have likewise been deleted. These changes have been well chosen and this new edition deserves the continued popularity which has been accorded the text since its first appearance.

New and Unofficial Remedies, 1927, containing descriptions of the articles which stand accepted by the Council of Pharmacy and Chemistry of the American Medical Association on January 1, 1927. Cloth. Price, postpaid, \$1.50. Pp. 473 XLVII. Chicago. American Medical Association.

The mechanism of this, the latest edition, is the same as of its predecessors: each preparation is classified, and each classification is preceded by a general and critical discussion of the group; there is an exhaustive index not only to the contents of the book, but also, separately, to the literature concerning the preparations that the Council has found unacceptable for inclusion. A glance at the book shows that the most important single revision this year is that of the general article on Lactic Acid-Producing Organisms, which has been radically revised and rewritten to show the present status of therapy in this field. Many preparations have been omitted. The preface explains that some of these have been omitted because the manufacturers or distributors have not presented evidence to demonstrate their continued eligibility. Others have been omitted because they have become official articles by inclusion in the new (tenth) edition of the United States Pharmacopoeia; such articles do not require description in "New and Nonofficial Remedies."

Among the preparations newly admitted to the book are: Isacen, a product related to phenolphthalein; Ipral, a barbitol hypnotic; a cod-liver oil concentrate having a definite vitamin A and vitamin B potency; and three erysipelas streptococcus antitoxin preparations.

"New and Nonofficial Remedies" is useful to every physician. It contains information about medical products which cannot be found in any other publication.

It is unfortunate that free distribution of the book to medical students has been discontinued. As the result of this policy, most students of today, who will be the physicians of tomorrow, know nothing of it and never

(Continued on Page 275)



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BOOK REVIEWS

(Continued from Page 272)

will get that desired personal acquaintance with it. Later on they may see an occasional quotation in a textbook or hear a word of commendation by a loyal physician.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1926, with comments that have appeared in the Journal. Cloth. Price, \$1.00. Pp. 73. Chicago: American Medical Association, 1927.

Reports are given on the following articles found not acceptable for "New and Nonofficial Remedies": Alona, Animasa, three benzyl benzoate preparations, Ceanothyn, Cresog, Firma Chloro, Idozan, Malt Nutrine, Murarsenide, Naftalan, Neo-Reargon, Nontox, Numoquin, Oeosolution, "Pabst Extract—The 'Best' Tonic," Phenoseptine Cones and Phenoseptine Powder, Pollen Antigen Spring Type (Lederle), Rad-X-Solution A and Rad-X-Solution B, Robes' Antirheumatic Injection, Sodium Methylarsenate (De Marsico, Ster-Alco, Sulcitacium, Tetradol, Thymoborine, Toxivi, Toxok and Triphos. Besides these there are reports on a number of articles that have been omitted from "New and Nonofficial Remedies." Reasons for rejection or omission are given. The new local anesthetic saligenin is no longer on the market.

The volume also contains the following special reports of current interest to physicians: a report on the status of bacillus acidophilus and bacillus bulgaricus therapy, on the basis of which the N. N. R. article on Lactic Acid-Producing Organisms has been revised and rewritten; a report dealing with the esteem in which antistreptococcus serum is now held by leading surgeons, gynecologists and obstetricians; and a preliminary report on the status of the new drug, ephedrin.

Tuberculosis—Pathology, Bacteriology and Laboratory Diagnosis. By Edward R. Baldwin, S. A. Petroff and Leroy U. Gardner. Pp. 342. Illustrated. Philadelphia: Lea and Febiger, 1927. Price \$4.50.

To the average student beginning the study of the fundamental investigations of the tubercle bacillus and its products, so conflicting and so diversified is the data to be learned that he is apt "to miss the forest because of the trees." Much time and effort will be saved the beginner in any field of tuberculosis if he first masters the contents of this book, which is the second volume of the Trudeau Foundation Studies. Though essentially

(Continued on Page 290)





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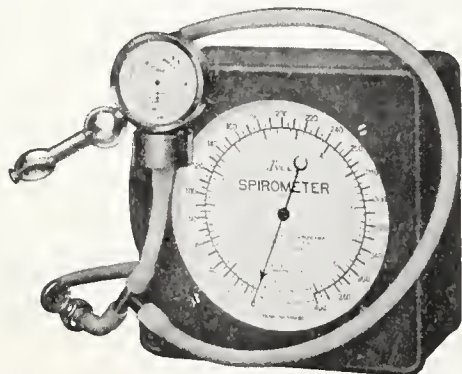
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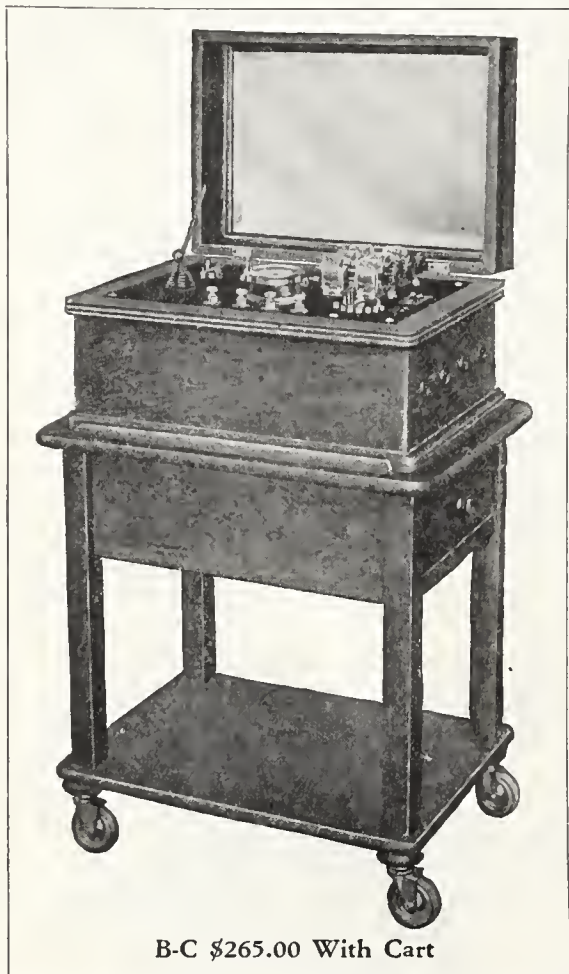
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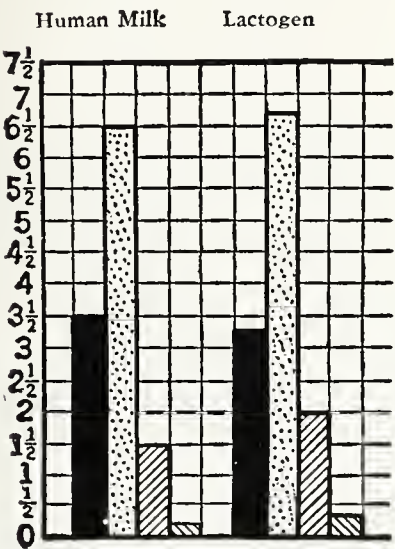
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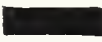
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BOOK REVIEWS

(Continued from Page 275)

presented for the bacteriological, pathological and laboratory diagnosis of tuberculosis, yet the authors have so aptly reviewed the problem beyond the limits of the laboratory that they have here presented for the novice a splendid survey of the subject. There are good chapters on predisposition, infection, immunology, epidemiology, prophylaxis, experimental therapy and tuberculosis and inconspicuously interwoven throughout the entire text is a constant thread high-lighting the clinical application of the data presented.

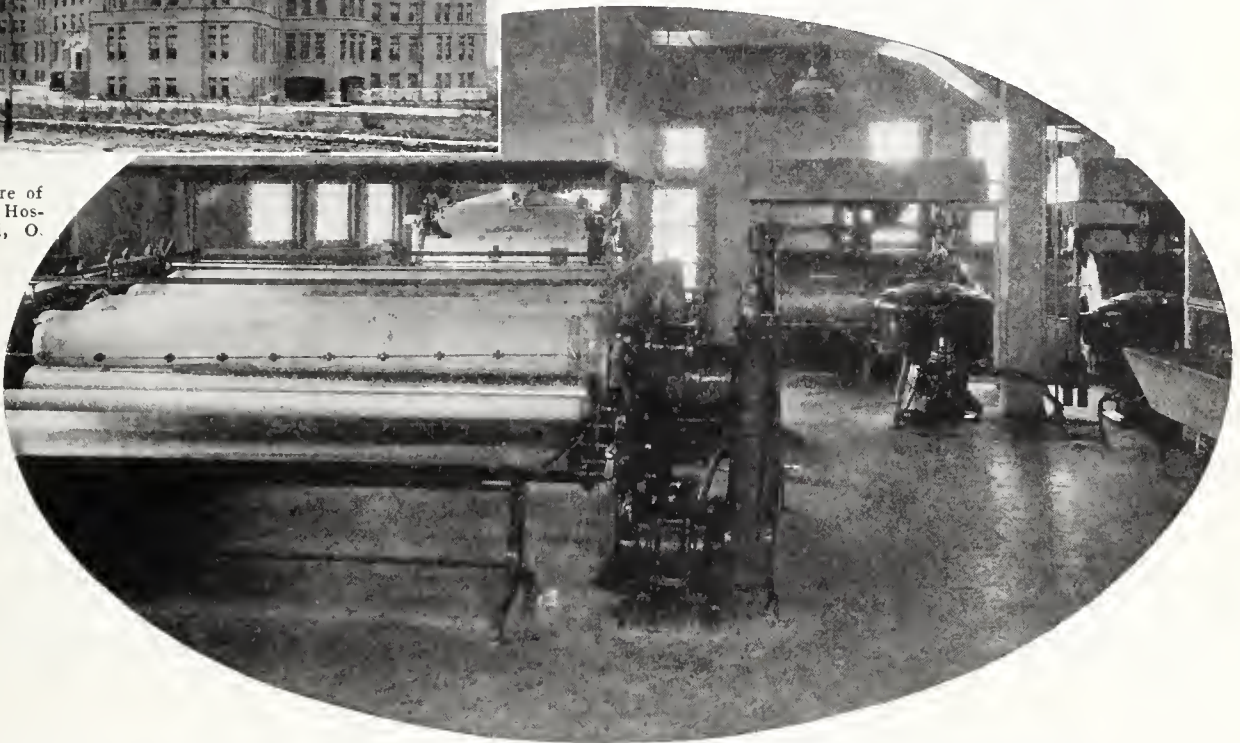
The authors conscientiously offer no laboratory procedure that has not been found useful in their hands; such a recommendation from these men cannot be gainsaid and greatly enhances the value of the book as a practical laboratory manual. For the sake of clarity, very little discussion of controversial points is contained within the text proper; this makes for easy reading, but an extensive bibliography is appended for the more discerning. The "Table of Contents" is analytical and the index keeps the contained information well on tap. It is an excellent textbook.

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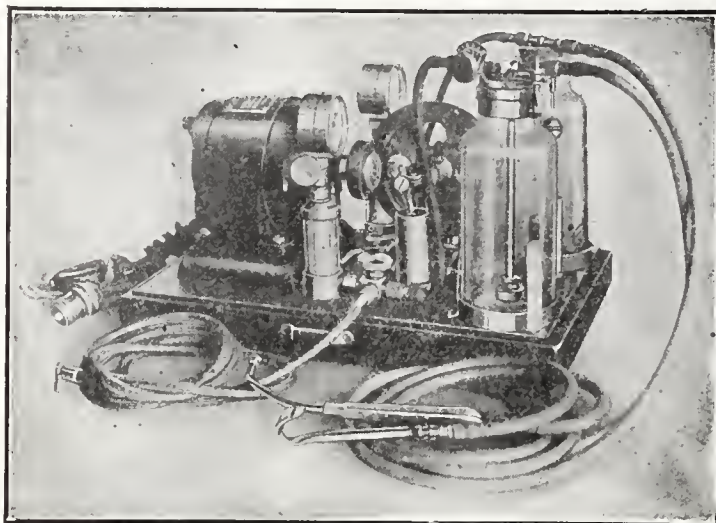
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Pollen Extracts (Cutter)—These are now marketed in capillary tubes and in packages consisting of three vials representing graduated concentrations. In addition to the products listed in New and Nonofficial Remedies, 1927, p. 34, the following have been accepted: Alkali Weed Pollen Extract (Cutter); All Scale Pollen Extract (Cutter); Box Elder Pollen Extract (Cutter); Burning Bush Pollen Extract (Cutter); Corn Pollen Extract (Cutter); Foxtail Pollen Extract (Cutter); Mountain Cedar Pollen Extract (Cutter); Tumbleweed Pollen Extract (Cutter); Western Water Hemp Pollen Extract (Cutter). Cutter Laboratory, Berkeley, Calif.

Pollen Extracts (Glycero-Saline), Mulford—Liquids obtained by extracting the dried pollen of plants with a liquid consisting of 66 2/3 per cent of glycerin and 33 1/3 per cent of saturated sodium chloride solution. For a discussion of the actions and uses see Allergic Protein Preparations (New and Nonofficial Remedies, 1927, p. 23). Pollen extracts (glycero-saline), Mulford, are marketed in bulk treatment packages and in treatment sets consisting of: First series (doses 1 to 5, inclusive); second series (doses 6 to 10, inclusive); third series (doses 11 to 15, inclusive); complete series (doses 1 to 15, inclusive); fourth series (doses 16 to 20, inclusive). The following preparations have been accepted: Lamb's Quarters Pollen Extract (Glycero-Saline), Mulford; Ragweed Pollen Extract (Glycero-Saline), Mulford; Timothy Pollen Extract (Glycero-Saline), Mulford; Wormwood Pollen Extract (Glycero-Saline), Mulford. H. K. Mulford Co., Philadelphia.—*Journal A. M. A.*, June 11, 1927, p. 1891.

Ethylene (C. L. P.)—A brand of ethylene for anaesthesia (N. N. R.). For a discussion of the actions and uses see New and Nonofficial Remedies, 1927, p. 50. Certified Laboratory Products, Glendale, Calif.

Protein Extracts Diagnostic (P. D. & Co.)—In addition to the products listed in New and Nonofficial Remedies, 1927, p. 40, the following have been accepted: Alfalfa Pollen Protein Extract Diagnostic (P. D. & Co.); Bean (Kidney) Protein Extract Diagnostic (P. D. & Co.). Parke, Davis & Co., Detroit.

Typhoid Vaccine (Prophylactic) (New and Nonofficial Remedies, 1927, p. 369)—This product is also marketed in packages of one 20 cc. vial containing 1000 million killed typhoid bacilli per cc. Parke, Davis & Co., Detroit.

Typhoid-Paratyphoid Vaccine (Prophylactic) (New and Nonofficial Remedies, 1927, p. 369)—This product

(Continued on Page 300)



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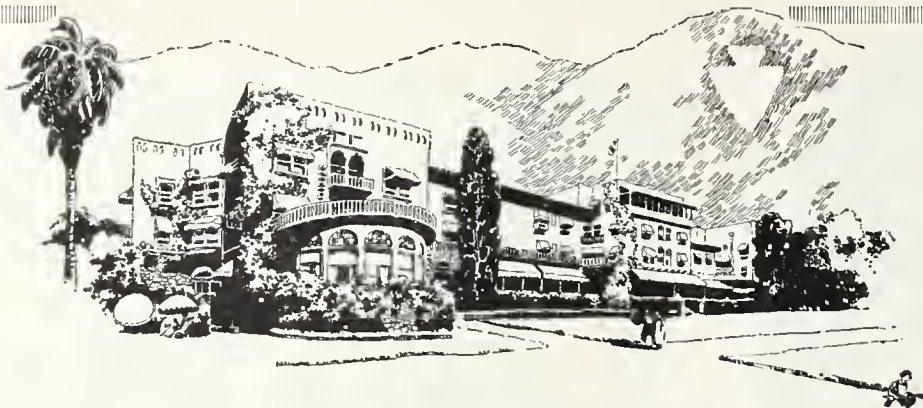
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The Quarterly Cumulative Index Medicus—Simultaneously with the opening of the annual session of the American Medical Association in Washington appeared the first number of the new *Quarterly Cumulative Index Medicus*, a combination of the *Index Medicus* published by the Army Medical Library with the aid of a grant from the Carnegie Institution, and the *Quarterly Cumulative Index to Current Medical Literature* published by the American Medical Association since 1916. The combination has been welcomed by librarians, by editors, by research workers—indeed, by all interested in medical progress, as a great achievement in the field of medical bibliography.—*Journal A. M. A.*

Tonics—Charles Reade, the English novelist, must have had some first-hand information about the nostrum makers when he named his dog Tonic because it was a mixture of bark, steal and whine.—*Ohio Health News.*

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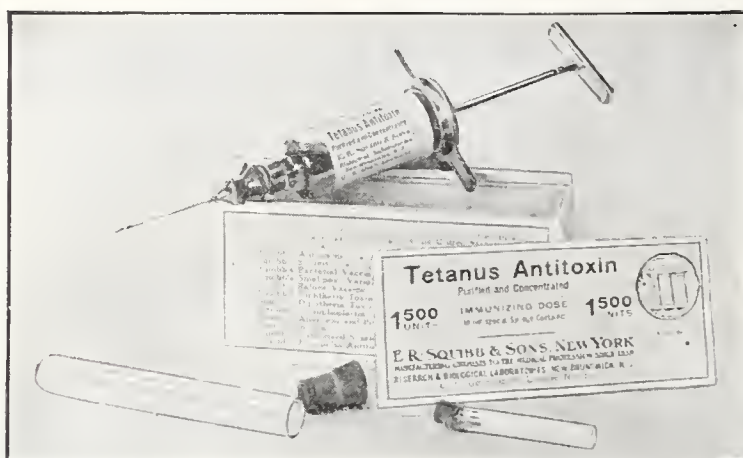


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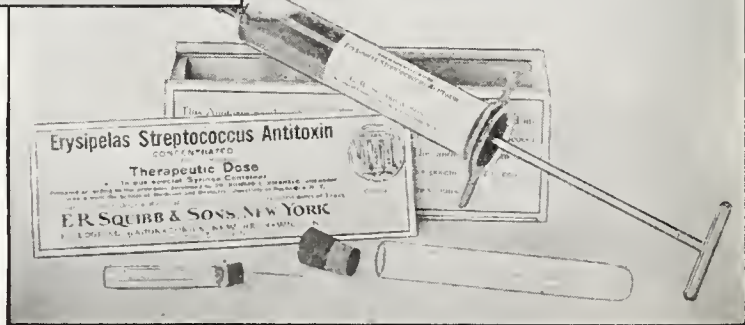
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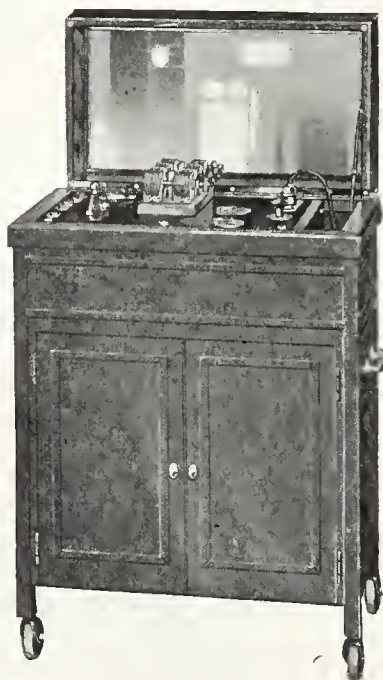
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TRUTH ABOUT MEDICINES

(Continued from Page 294)

is also marketed in packages of one 20 cc. vial containing 1000 million killed typhoid bacilli and 750 million each of killed paratyphoid bacilli A and B per cc. Parke, Davis & Co., Detroit.

Horlick's Maltose-Dextrin Milk Modifier—A mixture containing approximately: maltose, 63 per cent; dextrin, 19.5 per cent; protein, 11.5 per cent; fat, 1.4 per cent; moisture, 2 per cent, and ash, 2.6 per cent. On the claim that maltose is more readily assimilable than other forms of sugar, this product is proposed to supplement the carbohydrate of cow's milk. Horlick's Malted Milk Corporation, Racine, Wis.—*Journal A. M. A.*, June 18, 1927, p. 1967.

B. Acidophilus Milk (Fairchild)—A whole milk cultured with *B. acidophilus*. It contains not less than 50 millions of viable organisms (*B. acidophilus*) per cc. at the time of sale. For a discussion of the actions and uses of *bacillus acidophilus* preparations, see New and Nonofficial Remedies, 1927, p. 216, "Lactic Acid-Producing Organisms and Preparations." Fairchild Bros. & Foster, New York.—*Journal A. M. A.*, June 25, 1927, p. 2035.

PROPAGANDA FOR REFORM

The Origin of Vitamin D—The antirachitic substance, vitamin D, occurs in some fish oils—notably in cod-liver oil—in egg yolk fat, and to a small extent in milk fat. As a rule the vegetable fats are not antirachitic. A few instances of undoubted potency in oils of plant origin have been ascribed to the effect of solar irradiation of the products incident to their commercial preparation. This is true of coconut oil prepared from sun-dried copra. Whereas the other vitamins appear to originate in the vegetable kingdom, this is not the case with vitamin D. Experiments carried out to learn the

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origin of vitamin D in the codfish, raise the question as to whether vitamin D cannot actually be synthesized by certain species. These experiments also revealed that the oils of the herring and sardine rival the cod in antirachitic potency.—*Journal A. M. A.*, June 4, 1927, p. 1807.

Prodigaluz, a Spanish Nostrum Sold to Gullible Americans—A nostrum for the alleged cure of all diseases of the eye has been exploited during the past year in some American newspapers and magazines under the name of "Prodigaluz." The preparation was claimed to be a general specific for diseases of the eye and to cure trachoma, ulcerations of the cornea, cataracts, Gonorrheal conjunctivitis, progressive myopia, etc. The federal authorities reported the preparation to be a slightly turbid liquid, having a winelike odor, and containing alcohol, potash, zinc sulphate and tannin. The post office department issued a fraud order which will prevent the exploitation of this nostrum through the mails.—*Journal A. M. A.*, June 4, 1927, p. 1831.

Bulgara Tablets (H. W. & D.), Culture of Bacillus Bulgaricus (Lederle), Culture of Bacillus Bulgaricus (Fairchild), Galactenzyme Tablets, Lactampoule, Lactic Bacillary Tablets (Fairchild), and Vitalait Culture of Bacillus Bulgaricus Omitted from N. N. R.—The Council on Pharmacy and Chemistry decided to retain bacillus bulgaricus preparations in New and Non-official Remedies, provided that the claims for these were revised to show such preparations to be of value only in the preparation of soured milk, and, further, that all claims for their intestinal implantation and for their value as external applications be discontinued. The Council reports that the following products have been omitted from New and Nonofficial Remedies because acceptable revisions of the claims were not made: Bulgara Tablets (H. W. & D.) (Hynson, Westcott & Dunning); Culture of Bacillus Bulgaricus (Lederle) (Lederle Antitoxin Laboratories); Culture of Bacillus Bulgaricus (Fairchild), Lactampoule, Lactic Bacillary Tablets

(Fairchild) (Fairchild Bros. & Foster); Galactenzyme Tablets (Abbott Laboratories), and Vitalait Culture of Bacillus Bulgaricus (Vitalait Laboratory of California).—*Journal A. M. A.*, June 4, 1927, p. 1831.

The Florazona Fraud—The postmaster general has issued a fraud order against the Florazona Corporation, New York City, debarring it from the use of the mails. The "corporation" exploited Florazona, which was a bath powder claimed to bring about reduction of weight. The federal chemists found the preparation to be essentially sodium thiosulphate, with a small amount of baking soda and a trace of iodides and perfume. It was shown that the package of Florazona, which sold for \$3.50, could be manufactured for about 17½ cents. As is common in the advertising of fat-cure swindles, the advertisements for Florazona stressed the claim that, when using the preparation, it was unnecessary to exercise or to diet. Yet, as is also usual in the sale of such fakes, after the purchaser had paid her money, she found that dieting was suggested.—*Journal A. M. A.*, June 11, 1927, p. 1920.

Absorption of Vitamin D Through the Skin—The antirachitic factor, now commonly designated as vitamin D, which seems to be essential for the proper development and maintenance of the skeletal structures, apparently is not produced within the living body of man. The necessary supply is ordinarily derived either through the ingestion of antirachitic foods or through exposure of the skin to sunlight or ultraviolet rays. The last mentioned method is somewhat uncertain with respect to precise dosage. The alimentary path of introduction of the vitamin is usually the most convenient method for antirachitic therapy. Sometimes, though rarely, there may be barriers to its use; hence alternative procedures have been looked for. It has been found that the subcutaneous administration of cod-liver oil may lead to curative results attributable to the fat-soluble vitamins. It has now been found that vitamin D, as it

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is secured in irradiated sterols, can be absorbed from the uninjured skin. The possibility of antirachitic therapy by inunction is thus presented—*Journal A. M. A.*, June 18, 1927, p. 1970.

The "Cass Treatment" Trickery—The "Cass Treatment for Rheumatism" was a particularly bold piece of Chicago mail-order quackery, conducted under the name "Cass Laboratories." The Cass Laboratories were not laboratories; its alleged president, "Harvey L. Cass," who was featured throughout the advertising, did not exist, but the concern was run by one H. L. Cassel, in association with his brother-in-law, one Joseph V. Creevy. The "treatment" consisted of baking soda tablets, of other tablets containing aspirin and cinchophen, and of some flavored epsom salt, as was shown by an analysis made by the A. M. A. Chemical Laboratory. In October, 1926, the post office department called on the Cass Laboratories to show cause why a fraud order should not be issued against it. In February, 1927, Cassel submitted an affidavit to the post office department, declaring that he was authorized and empowered to execute it on behalf of the Cass Laboratories, and swearing: "That the business heretofore conducted under the name Cass Laboratories has been discontinued and abandoned and will not be resumed at any time in the future." The facts were that for a month or more before Cassel made this sworn statement, the name "Cass Laboratories" had been abandoned and the rheumatic public was receiving the same line of quackery under a new trade name: "H. L. Cass Corporation." It is to be hoped that in due time the post office authorities will issue a fraud order not only against the company itself, but against those conducting it.—*Journal A. M. A.*, June 18, 1927, p. 1983.

Kerosene—Kerosene is a weak antiseptic and parasiticide and irritant to the skin. Therefore: It can be used for parasitic affections of the scalp. It is of some use for seborrheic dermatitis of the scalp and, if it has any

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effect in preventing the outfall of hair, it is presumably due to its irritating-stimulating effect on the skin. But it does all these things in a crude, disagreeable way. All of them can be done more efficiently and much more accurately with drugs of definite composition. Its vogue as a hair tonic and hair restorer is largely due to that popular feeling, which has come down through the milleniums from our barbarous ancestors, that the efficiency of drugs is in proportion to their disagreeableness.—*Journal A. M. A.*, June 25, 1927, p. 2048.

State Typhoid Rate Lowest in History—The years 1925 and 1926 brought the lowest typhoid fever death rates in the history of California. In each of these years fewer than three persons out of every 100,000 die of this disease—California State Board of Health Weekly Bulletin.

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The New American Medical Directory—The tenth edition of the American Medical Directory has just been completed, and copies are now available for general distribution. More and more this volume is becoming of importance as a source book of statistics on the medical profession and its allied interests. It provides up-to-date biographic data on the 164,002 listed physicians of the United States, its dependencies, and Canada. A study of the present edition of the directory in connection with previous editions yields some interesting statistical data concerning trends in medical practice. During the past ten years a marked decrease in the number of physicians listed in Arkansas, Iowa, Indiana, Kentucky, Missouri, and Vermont has occurred. On the other hand, California, Florida, Illinois, Massachusetts, Michigan, Minnesota, New Jersey, New York, Ohio and Washington have shown considerable increases. The new directory contains 10,353 names that did not appear previously; 6052 names have been omitted since the last directory, these physicians having been reported as deceased. The changes of address during the two-year period amounted to 60,029, an average of eighty-two every day. If account is taken of the changes in membership in state medical societies, Fellowship in the American Medical Association, specialties, office hours, teaching positions, and so on, the total number of revisions made in compiling this new edition of the directory reaches an almost staggering figure. One of the new features of the directory is a list of licentiates of the American Board of Examiners, the American Board for Ophthalmic Examinations and the American Board of Otolaryngology. There is also a list of the 145 clinical laboratories included by the Council on Medical Education and Hospitals. The hospitals listed in this edition total 7816; for each institution the name, location, number of beds, name of medical director or superintendent, and kind of patients handled are provided. The tenth edition of the directory contains 2575 pages. While its compilation has been a tremendous task, the work has been made much easier by the splendid cooperation

rendered by individual physicians, secretaries of various licensing boards, medical colleges and societies and many others who have readily and willingly assisted in furnishing data.—*Journal A. M. A.*, June 11, 1927.

Women Dentists—Women have shown an increasing tendency to engage in dental practice. The growth in their number in the United States is indicated by these census figures: 1870—24; 1880—61; 1890—337; 1900—807; 1910—1254; 1920—1829; 1926—2100 (estimated). The capacity and opportunity of women to promote especially "preventive dentistry for children," under conditions of growing public concern and appreciation, should attract much larger numbers to this field. Nearly all of the dental schools in North America are open to them. The present attendance is approximately 200.—Carnegie Foundation for the Advancement of Teaching *Clip Sheet*.

Unnecessary Noises—The New York Times says: "Professor A. M. Low is coming to the United States in June to help to eliminate unnecessary noises in New York. He has scored successes in London. It is his opinion that 'noise kills many persons annually and shortens life by diminishing human resistance.'"

"It would be a mistake to limit a campaign of noise reduction to doing away with steam riveting. The field of reform includes the roar of elevated railways, the grinding of wheels on surface cars, the pandemonium of auto horns, the resonances of jazz 'palaces,' uncurbed excesses of the radio industry and slamming of cans by ashmen on their rounds at night.

"Victims should study the law of nuisances and invoke it in the courts."

A lawsuit would be more nerve-racking than the noise on which it was based. The American citizens will have to make up their minds to develop a nervous immunity to noises rather than to attempt the hopeless task of suppressing them.—*New York Medical Week*.

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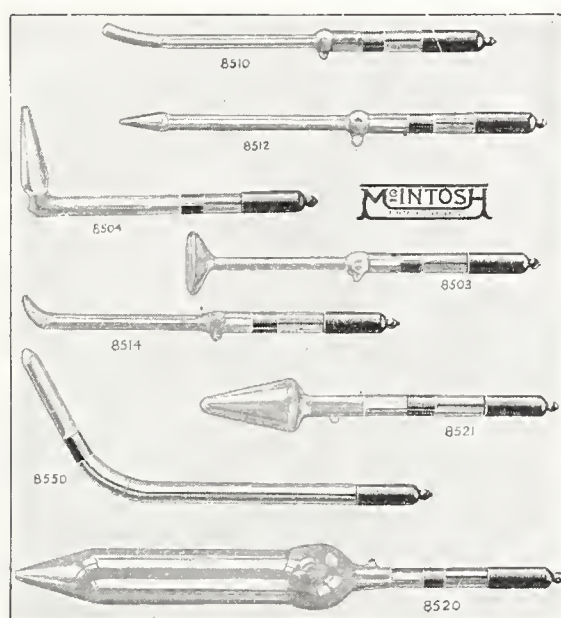
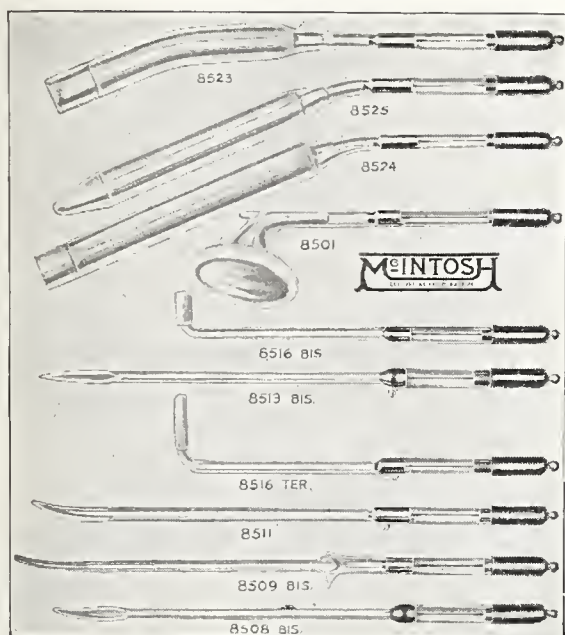
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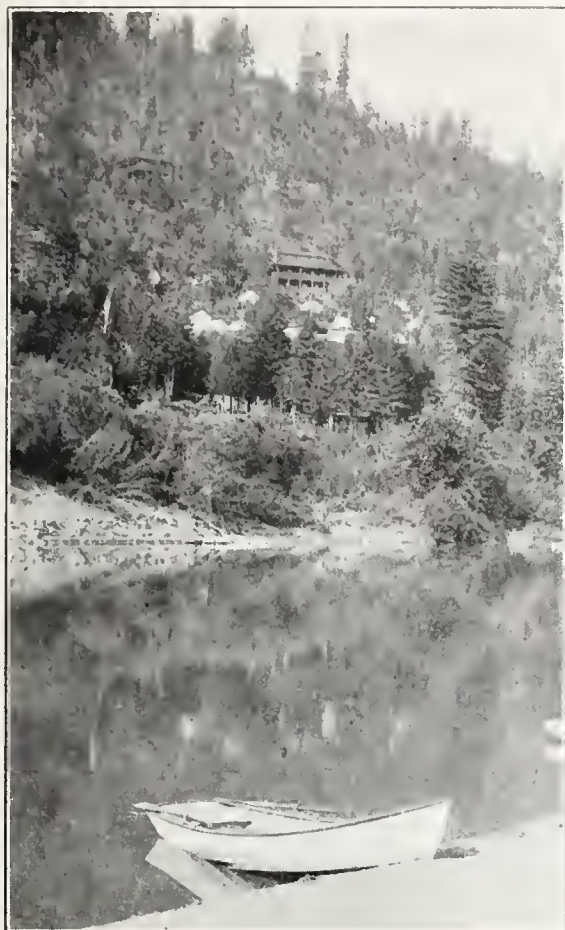
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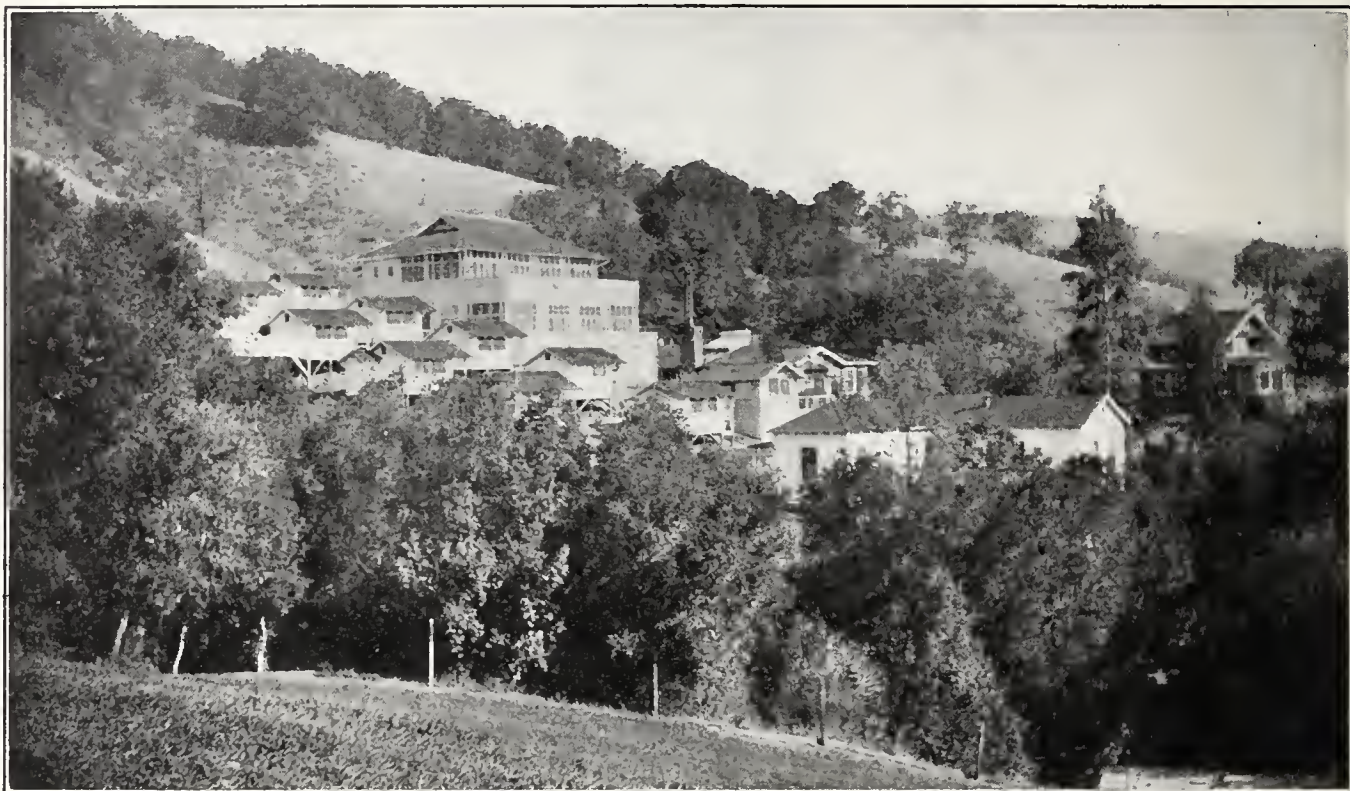
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BOOKS RECEIVED

Personal Hygiene for Women. By Clelia Duel Mosher, M. D. Review copy by the courtesy of the publishers, The Stanford University Press.

Potassium and Tartrates. A Review of the Literature on Their Physiological Effects. By Ralph W. Webster, M. D. Review copy by the courtesy of the publishers, The Commonwealth Press, Inc., Chicago.

Manual of the Diseases of the Eye. By Charles H. May, M. D. Twelfth edition, revised. Review copy by the courtesy of the publishers, Messrs. William Wood & Company, New York.

Compendium of Regional Diagnosis in Affections of the Brain and Spinal Cord. A Concise Introduction to the Principles of Clinical Localization in Diseases and Injuries of the Central Nervous System. By Robert Bing. Third edition. Review copy by the courtesy of the publishers, The C. V. Mosby Company, St. Louis.

Physical Diagnosis. By Richard C. Cabot, M. D. Ninth edition. Review copy by the courtesy of the publishers, Messrs. William Wood & Company, New York.

BOOK REVIEWS

This column is conducted solely in the interests of California and Western Medicine readers. Critical comment, favorable and unfavorable, purely from the standpoint of the interests of the medical reader, will be made about books selected from the larger number acknowledged in the Books Received column. The advertising columns are open to book publishers who wish to make additional statements about their publications.

Manual of Psychiatry. Edited by Aaron J. Rosanoff. Sixth edition. Revised, enlarged, and illustrated. Pp. 697. New York: John Wiley and Sons, Inc. 1927. This book shows rings of growth like a tree. The heart remains the manual of de Fursac, but the increase with the successive additions from 1905 to the present have made quite a stately volume. While there are only a few pages more than in the fifth edition, the page has been considerably enlarged and a great deal of new material added. There are about fifty new illustrations, largely photographs of patients, which add a good deal to the book. Almost every chapter shows some sort of revision. With the index has been combined a glossary, which adds much to the value of the book. It is a material improvement over the preceding editions and makes a valuable handbook for the worker in psychiatry in an institution or for the practitioner in general medicine. The book may be heartily recommended.

Textbooks on Diseases of the Skin and Syphilis. Designed for the use of students and practitioners. By Albert Strickler. Pp. 689. Illustrated. Philadelphia: F. A. Davis Company. 1927.

This book, which is well illustrated, is especially adapted for the student and the general practitioner. The author discusses the various drugs used in dermatology in such a way as to fulfill a much-needed requirement. Although the various diseases are rather briefly mentioned, yet none of the essential points is left out and the well-arranged tables which are used in simplifying the differential diagnosis make this book especially valuable for the hurried practitioner.

The chapter on new growths deserves special commendation, as it brings out clearly many of the latest theories and methods of treatment. However, it is to be regretted that the book is entirely lacking in bibliography.

Pneumoconiosis (Silicosis). A Roentgenological Study with Notes on Pathology. By Henry K. Pancoast and Eugene P. Pendergrass. Pp. 186. Illustrated. New York: Paul Hoeber. 1926. Price, \$4.

A systematically arranged monograph covering the subject based on personal observations and a complete review of the literature.

Primarily considering the roentgenological features of silicosis, the writers devote a portion of the book to the dusts with particular reference to silica, pathological factors in its production of pulmonary fibrosis, preventive measures and occupational incidence. The coexistence of tuberculosis and silicosis is briefly covered, but as yet nothing new is offered with reference to the recognition of the early exudative and productive lesions of tuberculosis superimposed upon the chronic fibrotic changes produced by inhaled dust.

In accordance with the roentgen appearance the disease is divided by the authors into three stages:

1. Limitation to the lung roots (tracheobronchial lymph

(Continued on Page 318)

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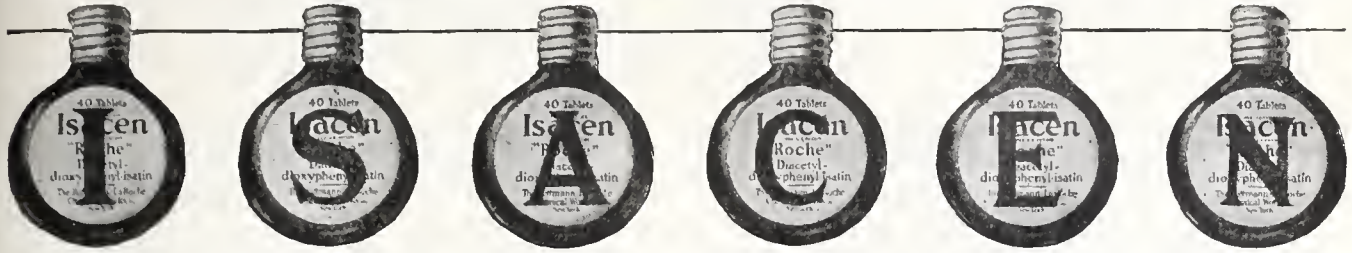
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BOOK REVIEWS

(Continued from Page 315)

adenopathy) and fibrosis about the ramifications of the bronchial tree.

2. Productive lesions in the pulmonary parenchyma complicating as a rule the findings of the first stage.

3. Relatively increased fibrosis with subsequent intrathoracic deformities.

The reproduced radiographs very well illustrate the various manifestations of the disease, the descriptive matter is excellent and the statistics are of some interest. Complete bibliography appended.

The Clinical Interpretation of Blood Chemistry. By Robert A. Kilduffe. Pp. 186. Philadelphia: Lea and Febiger. 1927. Price, \$2.50.

R. A. Kilduffe has written a book of much practical value in "The Clinical Interpretation of Blood Chemistry." In reading the book the reader is struck with the idea of how delightfully free it is of positive statements concerning chemical facts concerning which medicine itself is still in much doubt.

The author intended that his book should be a flexible guide to the clinician rather than a summary statement of facts that no clinician must ignore.

The first half of the book runs true to its titles, but the last half is much more concerned with the treatment and diet of the diabetic than its title would warrant.

While giving the wisdom of the knowledge of the quantitative value of creatinin determinations, Kilduffe does not make the bold statement that all patients having a blood creatinin of over ten mg. must die. He merely asserts that patients having a value of over five mg. are dangerous.

His statements of the glucose value of the blood are as concise and informing as it is possible to make with the present knowledge of chemistry.

Upon the blood chemistry of the different types of nephritidis, he is careful and well guarded. The value of the N. P. N. chlorides, urea, etc., are set forth as securely as possible. How thoughtful he has been to keep from misleading the clinician upon so slippery a ground as the blood chemistry may be gathered from the opening paragraph of the "Clinical Applications of Blood Chemical Analysis." "It is not to be expected that blood chemical analysis . . . will invariably name the disease."

Blood chemical analyses are important, but they cannot be expected to relieve the clinician of all thinking and other work at the bedside of the sick, and this fact Kilduffe's book well appreciates while setting forth simply the value of the analysis.

Modern Medicine: its theory and practice in original contributions by American and foreign authors. Edited by Sir William Osler. Third edition, revised. Re-edited by Thomas McCrae assisted by Elmer H. Funk. Vol. IV. Pp. 1011. Philadelphia and London: Lea and Febiger. 1927. Price, \$9.

In a previous review we have commented on some of the general features of the new edition of Osler's "Modern Medicine."

Volume IV, which deals with diseases of the respiratory system and of the circulatory system, is particularly attractive. An innovation of special importance is the summaries on "The Physiology of Respiration," "General Considerations in Cardiovascular Disease" by the late Doctor Hoover of Cleveland, and the section on "The Rate and Mechanism of the Heart Beat" by Sir Thomas Lewis. These comprehensive and modern articles serve to prepare the point of view of the reader for the material subsequently presented in more detail. Perhaps the most outstanding contribution in the volume is that by Maude Abbott on Congenital Heart Disease, a monograph in itself and written with the authority of one who has devoted years of personal study to the subject. One should not, perhaps, criticize small points in a treatise which, on the whole, is so excellent, but the statement that the cause of tonsillitis, which is now definitely known to be a hemolytic streptococcus infection, is hypertrophy or exposure to cold seems distinctly out of place.

Politzer's Textbook of the Diseases of the Ear. For students and practitioners. Sixth edition, revised and largely rewritten by Milton J. Ballin. Pp. 776. Illustrated. Philadelphia: Lea and Febiger. 1926.

Doctor Ballin's revised and largely rewritten edition of Politzer's book on the ear, has come to us with much hope, but after examining it carefully and comparing the two editions closely, we are disappointed. There are few essential changes although the new edition shows some reconstruction of sentences and condensation or omission of paragraphs.

Throughout the last edition case reports have been left out. An attempt is made to describe in more detail the subject of nystagmus, but the paragraphs are difficult to understand.

Doctor Ballin gives a valuable description of the use of bone transplants postmastoidectomy, original with him. Stress is laid on the value of repeated blood cultures in possible blood-stream infection with sinus involvement. Little is said on intracranial complications of middle and internal ear diseases.

Nothing is said of the recent work on the otolithic

(Continued on Page 320)



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BOOK REVIEWS

(Continued from Page 318)

reactions. In short, that which should be found in an up-to-date book on the ear is lacking and it is difficult to place the value of the Ballin sixth edition of Politzer's book on the ear that it should have had.

Should We Be Vaccinated? A survey of the controversy in its historical and scientific aspects. By Bernard J. Stern. Pp. 146. New York and London: Harper and Brothers. 1927.

This small volume contains a very complete history and concise discussion of the century-old argument on vaccination. Written from the viewpoint of a sociologist, it is a fair but critical survey of the problem which has so long confronted the medical profession. More particularly the author analyzes the reasons for opposition to vaccination on the basis of a careful historical, psychological and sociological study of the subject.

The book is presented in a clear popular style, and should serve as a valuable means of conveying the facts to those who are ignorant or misinformed in regard to vaccination. To the physician it should be an interesting review of an old battle ground from a new point of view.

City Health Administration. By Carl E. McCombs. Pp. 524. New York: The Macmillan Company. 1927. Price, \$5.50.

This volume is not a manual of hygiene, but is just what the name suggests—a treatise on the administrative problems related to public health. The author, who is a member of the staff of the New York Bureau of Municipal Research and Training School for Public Service, has been engaged in making surveys of state and local health administration in various parts of this country for the past fifteen years.

The book is written for laymen as well as for physicians, and is intended to stimulate interest on the part of all classes in public health. The author greatly deplores the lack of training given, not only to ordinary individuals in schools in regard to health matters, but also the lack of knowledge on the part of those especially trained for public service.

Practically every field which might be properly cared for by government agencies is covered as completely as is possible in a volume of this size. The material appears to be very well organized.

In discussing sickness treatment functions, a statement is made with which it is very likely not all will agree. He says, "It is possible to conceive a situation in which the entire program might have to be carried on by the city government at public expense, and it may be that in the not too distant future, the care and treatment of the sick of all classes will be regarded in much the same way as education, that is, as a tax-supported service for all regardless of their economic circumstances." He emphasizes in this connection the very large class of people who find sickness a very serious drain on their resources, although under ordinary circumstances, not public charges in any sense.

A volume written by one having as broad an experience as the author has had in connection with city health administration will be a welcome addition to public health literature. The book will be of value to all

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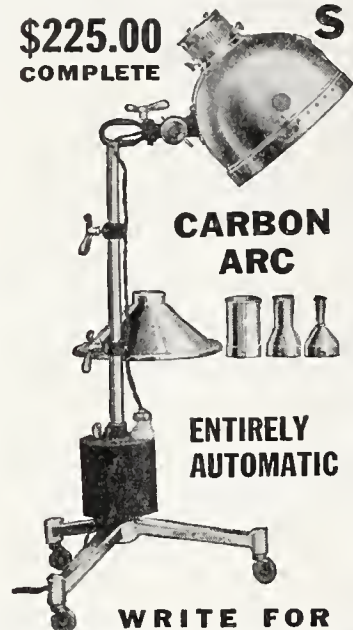
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those desiring an introduction to the problems connected with this work.

Mineral Waters of the United States and American Spas. By William Edward Fitch. Pp. 799. Illustrated. Philadelphia and New York: Lea and Febiger. 1927.

This is an important and timely publication. Considering the importance of the subject and the scanty attention it was so far given by the medical profession of this country, such a formidable sign of the awakening interest of the profession for the enormous unexplored and (Continued on Page 322)

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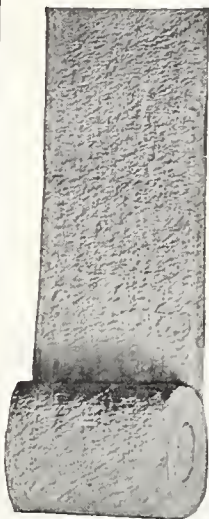
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BOOK REVIEWS

(Continued from Page 320)

hardly exploited hidden wealth of our country is welcome.

Medical hydrology, hydriatics, crounotherapy, balneo-therapy, receive in this volume thorough, strictly scientific and scholarly consideration. Our mineral waters are well classified, and it is remarkable what wealth of information Guy Hinsdale was able to concentrate in the chapter on the rationale and technique of hydrotherapy in less than fifty pages.

The chapters on the unification of the chemical analysis, the medicinal classification and the radioactivity are really commendable. The chapter on dosage contains new information and ought to be especially studied by every medical practitioner.

The space allotted to a review of even an important publication precludes the entering into the many details of the thorough exposition of the subject, and we can only emphasize that the close study of this book will enlighten and benefit every medical man.

The reviewer gladly and fully agrees with the author when he says, "Our American waters are just as good, just as potent, just as efficacious, and not only equal to any in the world, but in some instances, superior."

The author claims that the medical schools in America, so far, have neglected the subject and urges more clinical study of American mineral waters and the teaching of hydriatics. He is surely right in claiming that clinical experience alone determines the therapeutic value of mineral waters.

The author asks why such a large number of American citizens patronize European spas in preference to resorts so much nearer and frequently better ones in their own country? The reviewer thinks that the reasons are obvious. European spas are well known and in spite of that are constantly and intensively advertised. The comforts and attractions offered there are mostly, if we except a few of our most prominent springs, vastly superior. The wealthy people of this country, in the habit of going to Europe frequently, readily sacrifice the time necessary for a cure at some mineral spring, while at home they never think they have the time to be away from business.

It is also obvious that the owners of the innumerable mineral springs in the United States, be they now private citizens, communities or governments, must wake up and try to help themselves.

Poverty, penuriousness, and ignorance are in the way of equipping and advertising the various places.

The author cannot be blamed that in his splendid book and in the chapter on the great American spas not a



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single one of our California mineral springs is mentioned. Very few California physicians know anything about the powerful and sometimes marvelous qualities of some of our own mineral springs. The people frequent them haphazardly without any consideration of indications.

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It is quite certain that our blessing, prohibition, does not help to popularize American spas.

Excess of Medical Students in France—The excess of medical students in France as in many other countries is reported to constitute a difficult problem. There are at present 5000 students of medicine in Paris alone and 8800 students in France as a whole. Among this number (in Paris, especially) there is a large proportion of foreigners. Theoretically the foreign students after securing their diplomas, are supposed to return to their own country to practice their profession. Foreign students, on entering French universities, are not always required to present the same evidence of preparatory studies that is exacted of French students. By reason of this fact, foreign students receive a special diploma, which does not permit them to practice in France. But most foreign students, through their ambassador, try to get this restriction removed, in order, as they allege, that they may treat their compatriots residing in France. However, they seldom locate in the regions where the number of their countrymen is especially large, but remain in Paris, where, in the opinion of the medical societies, they constitute an encumbrance, as the capital is overcrowded with physicians, while the rural districts complain of a dearth. It is alleged that the encumbrance is felt also in the schools and hospitals.—*Federation Bulletin*.

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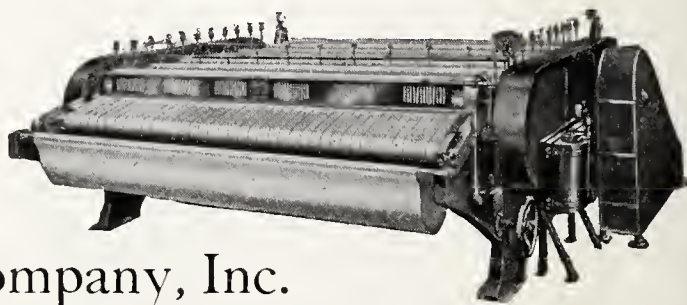
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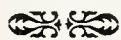
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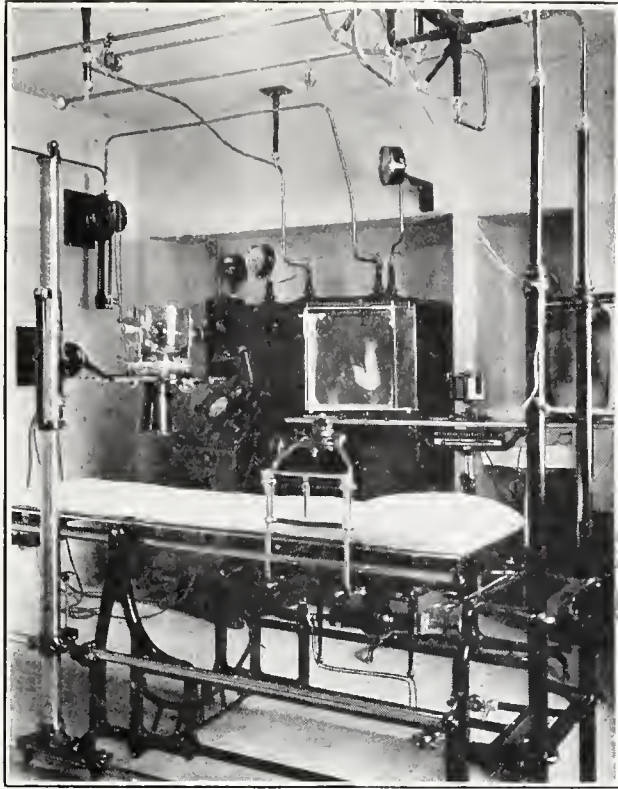
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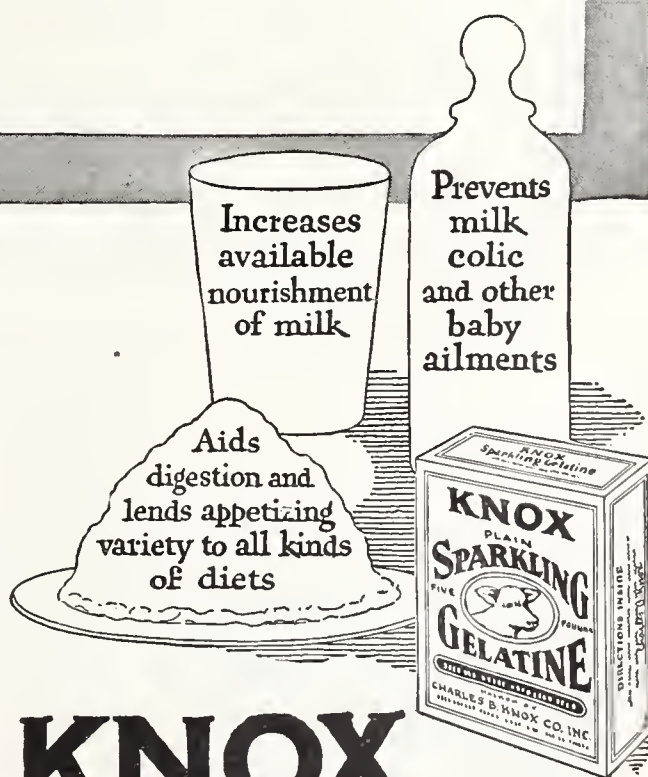
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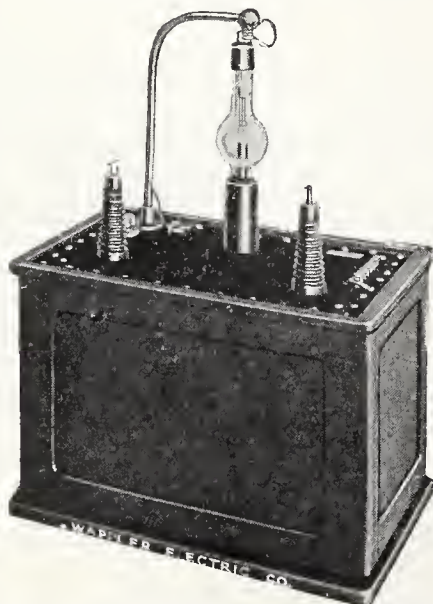
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National War on Rats Showing Results—Rats are probably decreasing in numbers in the United States, says the United States Department of Agriculture, although their decrease is only beginning to be apparent. The chief factors responsible for any decrease are present-day sanitary requirements and modern building, which make it increasingly difficult for rats to find food and shelter; a national urge against all unnecessary waste; and a better understanding generally of the relation of rats to human economy.

Furthermore, as facts relating to the spread of communicable disease have become better known, more general interest in rat control has been stimulated, more effective means of destroying rats have been developed, and information regarding these methods has been widely distributed. Farmers' Bulletin 1533-F, "Rat Control," prepared by James Silver of the Biological Survey, and just issued by the department, contains many suggestions for the control of rats on the farm and in the city.

A copy of the bulletin may be obtained by writing to the United States Department of Agriculture, Washington, D. C.—U. S. Department of Agriculture.

Can Fight Mosquitoes Now with Schools of Minnows—Draining ponds and marshes or pouring crude oil over such places is known to be one method of controlling malaria by preventing the breeding of the malaria-bearing mosquitoes. However, in summer resorts and at country clubs it is not practical to do this. Another method is to stock the ponds with small fish that eat the larvae of the mosquitoes, reports Hygeia.

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CALIFORNIA
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WESTERN MEDICINE

VOLUME XXVII

SEPTEMBER, 1927

No. 3

CHOLESTEROSIS OF THE GALL BLADDER *

I. A CLINICAL STUDY

By E. STARR JUDD, M. D.
Rochester, Minnesota

AND

STANLEY H. MENTZER, M. D.
San Francisco

ONE thousand surgical cases of cholesterosis of the gall bladder were studied to determine what clinical and surgical differences there might be when this condition was accompanied by gall-stones. The present paper is concerned with the clinical data only, as a later paper will consider the surgical aspects of this lesion.

The cholesterosis was in the form of "strawberry," "fish-scale," or papillomatous lesions. In five hundred of the selected cases there were no stones, and in an equal number gall-stones were an accompanying feature of the lesion.

ETIOLOGIC FACTORS

Age and Sex—Seventy-six per cent of the stone-free, and 82 per cent of the gall-stone cases occurred in females. The high incidence of cholesterosis of the gall bladder in the female is due probably to metabolic disturbances occurring during pregnancy, as we have previously shown. The age incidence in the two groups is essentially alike, the greatest number of cases in each group occurring between the ages of 35 and 40 (Table 1). The youngest patient was 19 years of age, and the oldest 72.

Typhoid Fever—The incidence of typhoid fever as an etiologic factor is essentially the same in both groups: 13 per cent in the stone-free and 14 per cent in the stone group. In a previous postmortem study of 612 cases we found that

8.5 per cent of the total number of patients had had typhoid fever, whereas 23 per cent of those with diseased gall bladders had had such a history. In our surgical series, therefore, the occurrence of typhoid fever was something less than twice as great as in an average series.

Obesity—In a previous paper we drew attention to the occurrence of cholesterosis of the gall bladder in the obese. Of fifty-one patients weighing more than two hundred pounds, 78 per cent showed grossly visible fatty changes in the wall of the gall bladder.

In this series of one thousand surgical cases of cholesterosis of the gall bladder the weight in 24 per cent of the stone-free cases and in 33 per cent of the gall-stone cases was more than 175 pounds. This high incidence of obesity in cases of cholesterosis of the gall bladder again suggests metabolic derangement in this disease.

Pregnancy—Fifty-eight per cent of the women with cholesterosis of the gall bladder alone, and 67 per cent with cholesterosis and stones had been pregnant one or more times (Table 2). It is interesting that more than 5 per cent in each group had been pregnant oftener than ten times, and more than 25 per cent, from five to ten times. These data are in accord with the well-known association of pregnancy and gall bladder disease. In our previous necropsy report 86.5 per cent of the women with cholesterosis had been parturient.

Many of the patients were aware of the association of the upper abdominal distress and the pregnancy. Some were able to date the onset of their trouble to their first or last parturition (Table 3). By far the greatest number of women (45 per cent) dated their trouble to the time of their first pregnancy.

SYMPTOMS

Pain—It was rather surprising that almost all of the stone-free patients complained of some abdominal distress, as 5 per cent of those with gall-

* Read before the California Medical Association at its Fifty-Sixth Annual Meeting, April 25-28, 1927. Part two of this paper will appear in the October issue of this journal.

TABLE 1
INCIDENCE AT DIFFERENT AGES

Disease of gall bladder	19-20, per cent	20-25, per cent	25-30, per cent	30-35, per cent	35-40, per cent	40-45, per cent	45-50, per cent	50-55, per cent	55-60, per cent	60-65, per cent	65-70, per cent	70-75, per cent
Cholesterosis	0.2	3.0	7.8	13.8	19.4	17.0	15.8	14.0	5.6	2.4	1.0	
Cholesterosis and stones	0.4	2.6	7.2	13.0	14.2	16.8	15.2	16.8	8.4	3.6	1.6	0.2

stones gave no history of pain. But a study of Table 3 shows that the stone-free patients did not localize their discomfort in the classical gall-bladder sites so readily, and that the pain was less severe, proportionately, than that of the patients with stones. The stone-free patients with

TABLE 2
PREGNANCY

Disease of gall bladder	No. of pregnancies						Percentage of all women
	1, per cent	2, per cent	3, per cent	4, per cent	5-10, per cent	10+, per cent	
Cholesterosis	13.8	22.5	17.7	14.2	26.3	5.3	57.6
Cholesterosis and stones	16.3	21.1	17.5	10.4	29.1	5.2	62.2

the more severe colic, as graded 3 and 4, were only half as numerous as the corresponding patients with gall-stones. Moreover, 42 per cent of the latter required morphin for the relief of their pain, whereas 25 per cent of the stone-free patients required it. It is surprising to us that

TABLE 3
RELATION OF PREGNANCY TO FIRST SYMPTOMS

Disease of gall bladder	First symptoms noted				Percentage of total
	During pregnancy, per cent	After pregnancy, per cent	With first pregnancy, per cent	With last pregnancy, per cent	
Cholesterosis	45.6	25.8	12.9	16.2	6.2
Cholesterosis and stones	43.9	21.9	19.5	14.6	8.2

so high a percentage of the stone-free group needed hypodermic relief. We are not able to explain this satisfactorily, although we believe that the pain occurring in cholesterosis of the gall bladder is in reality hepatic in origin. Our

TABLE 4
SEVERITY OF PAIN

Disease of gall bladder	Grade of pain							
	1, per cent	2, per cent	3, per cent	4, per cent	1-2, per cent	2-3, per cent	3-4, per cent	2-4, per cent
Cholesterosis	12.6	20.6	8.2	4.0	19.2	13.2	7.2	14.8
Cholesterosis and stones	5.7	13.4	14.8	10.0	12.3	9.5	19.5	14.6

necropsy studies showed evidence of marked fatty disturbances in the liver in the majority of the cases.

The study of the localization of distress in the

two groups is interesting. We had expected marked variations in the site of pain, but Table 5 shows that such was not the case. In 10 per cent of the stone-free and in 12 per cent of the gall-stone cases the pain was in the classical region, the right upper quadrant, radiating directly posteriorly and to the shoulders. The most frequent site of pain in both groups was in the right upper quadrant and radiating directly posteriorly. Distress in the epigastric region was complained of by 22 per cent of the stone-free patients and by 18 per cent of the others. But the patients in the stone-free group localizing their distress in the epigastric region gave vague and indefinite complaints, whereas the majority of the group with gall-stones had more severe and definitely localized pain.

The duration of distress in the two groups follows the normal expectancy. The patients with stones complained of pain of relatively short duration, whereas the patients without stones suffered for longer periods. However, the average duration of symptoms for the two groups of cases did not differ materially, being about six and one-half years for the stone-free, and five years for the gall-stone cases. The shortest duration was four hours, in a gall-stone case, and the longest, fifty-six years, in a stone-free case (Table 6).

Gastrointestinal Symptoms—Indigestion was an almost universal complaint in both groups. Eusterman has shown that patients with all types of gall-bladder disease give indigestion as their major complaint. Certainly it is to be expected that in cases of cholesterosis of the gall bladder, which is probably primarily a metabolic disease, indigestion would play a dominating rôle.

True qualitative food distress, however, was complained of by only half the patients. The difference between the two groups in this respect is not so great as might be expected, and the anticipated proportion is reversed, for 50 per cent of the stone-free patients had true qualitative food distress (intolerance to fats, carbohydrates and acids), whereas only 43 per cent of the patients with gall stones gave such a history. These percentages, however, may be slightly lower than usual in such cases, as a complete gastrointestinal history was lacking in 2.5 per cent of the cases in which the gall bladder was unexpectedly found diseased during operation for other abdominal lesions.

Thirty-five per cent of the stone-free patients

TABLE 5
SITE OF PAIN

Disease of gall bladder	Right costal margin, per cent	Right upper quadrant, per cent	Epigastrium, per cent	Right lower quadrant, per cent	Left upper quadrant, per cent	Back, per cent	Shoulder, per cent	Right upper quadrant, back and shoulder per cent	Right upper quadrant and back, per cent	No pain per cent
Cholesterosis	7.8	16.2	21.8	5.8	1.0	0.6	0.4	9.8	37.4	0
Cholesterosis and stones	8.8	14.6	17.6	5.2	0	1.2	0.2	11.6	35.2	5.4

TABLE 6
DURATION OF SYMPTOMS

Disease of gall bladder	Months 1-6, per cent	Months 6-12, per cent	Years 2, per cent	Years 3, per cent	Years 4, per cent	Years 5-10, per cent	Years 10-15, per cent	Years 15-20, per cent	Years 20+, per cent	Years average per cent
Cholesterosis	12.3	11.4	11.0	7.9	6.4	26.0	12.7	5.8	4.3	6.49
Cholesterosis and stones	14.1	15.6	16.1	15.6	16.7	18.0	9.3	4.4	2.9	5.1

and 45 per cent of those with gall-stones complained of vomiting (Table 7). The severity of the vomiting was somewhat greater in the patients with gall-stones, as might be expected.

Belching and bloating were present in a slightly larger proportion of gall-stone cases (6 per cent, Table 8). Belching and bloating were complained of in approximately 30 per cent of each group.

Jaundice—It is surprising that the incidence of jaundice was equal in the two groups (17 per cent). It was questionable also in 4 per cent of the stone-free cases and in 1 per cent of the gall-stone cases. It is difficult to interpret this find-

TABLE 7
SEVERITY OF VOMITING

Disease of gall bladder	Grade 1, per cent	Grade 2, per cent	Grade 3, per cent	Grade 4, per cent	Grade +, per cent	Per-centage of total
Cholesterosis	30.0	49.1	5.9	0	15.2	34.6
Cholesterosis and stones	22.3	45.5	10.7	0.4	21.4	44.8

ing. The cases of cholesterosis of the gall bladder, without stones, were essentially non-inflammatory, and the likelihood of cholangitis, therefore, was lessened. In the absence of stones it is perplexing indeed to account for jaundice in cases of cholesterosis. Gall-stones might have been present previously and none found at operation, but it is difficult to believe that this could be true in 17 per cent of 500 cases. Without such an explanation we are forced to consider other causes of obstruction in the common duct. The most likely causes, aside from stones, are cholangitis or stenosis or kinking of the duct itself. It is not yet certain that metabolic changes in the liver, without obstruction of the duct, are sufficient to produce jaundice.

Chills and Fever—Chills and fever occurred in 22 per cent of the stone-free cases and in 18 per cent of the gall-stone cases. It would be difficult to understand the higher percentage in the stone-free group were it not that 13 per cent of the patients in this group complained of fever,

whereas only 6 per cent of the patients with gall-stones had pyrexia.

SUMMARY

One thousand cases of cholesterosis of the gall bladder were studied. In half of these gall-stones were associated. About 80 per cent of the cases in each group were in females. The age incidence in each group was highest between 35 and 40 years. Typhoid fever is noted in the histories of about 8 per cent of routine necropsy cases. In 13.5 per cent of the present series there was a history of typhoid fever. Obesity was associated in 24 per cent of the stone-free and in 33 per cent of the gall-stone cases. Pregnancy had occurred in 58 per cent and 67 per cent of the cases, respectively. The majority of women dated their trouble to the time of their first pregnancy. Pain was located in the right upper quadrant and radiated directly posteriorly in the greatest number of cases in each group. Morphine was required for the relief of pain in 25 per cent of the stone-free and in 42 per cent of the gall-stone cases. The average duration of symptoms was slightly longer in the stone-free group. Indigestion was an almost universal complaint in both groups. True qualitative food distress was present in 40 per cent of the stone-free and in 50 per cent of the gall-stone cases. Belching or bloating, or both, were present in 55 per cent and 61 per cent of the groups, respectively. Vomiting occurred in 35 per cent and 45 per cent of the groups, respectively. Jaundice was present in 17 per cent of each group. Chills and fever occurred in about 20 per cent of each group.

CONCLUSIONS

1. The clinical picture of cholesterosis of the gall bladder is not greatly altered by the presence of gall-stones.
2. There is a striking parallelism in all the features of the disease in the two groups except that the symptoms in the gall-stone cases are somewhat more severe.
3. Cholesterosis of the gall bladder is probably a localized manifestation of altered fat metabolism in the entire body.

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TABLE 8
BELCHING AND FLATULENCE

Disease of gall bladder	Grade 1, per cent	Grade 2, per cent	Grade 3, per cent	Grade 4, per cent	Grade +, per cent	Total, per cent	Belching, per cent	Bloating, per cent	Both, per cent	Total, per cent
Cholesterosis	19.7	47.2	25.8	0.9	6.8	53.4	50.0	21.2	28.7	61.8
Cholesterosis and stones	18.3	35.6	16.5	0.2	0	79.7	43.4	23.5	32.9	55.6

THE DOCTOR'S CIVIC OBLIGATIONS*

By W. R. CALDERWOOD, M. D.
Salt Lake City, Utah

I DESIRE to express my sincere appreciation for the distinguished honor you have conferred on me in permitting me to serve as your presiding officer and to help in shaping the policy of your association in these important and rapidly changing times.

I desire also to extend my thanks and appreciation to the officers and committeemen, to whom credit is due for the week's program and entertainment.

No officer or member of a state medical association can give earnest thought and consideration to the purposes of such an organization and the far-reaching consequence of its policies without sensing the responsibilities and obligations, not only of its officers and directors but also of its individual members.

Every organized body of men owes certain specific and definite duties to the community of which it forms a part and from which it derives its protection and is enabled to function as an organization.

Medicine as a specialization in the division of labor came into existence in response to man's call for help. Man in his helplessness—in his efforts to obtain relief from pain and suffering—and in his desire to prolong his life in usefulness, created a demand for medical help. In response to this demand, medical colleges and hospitals were established in order that men might perfect themselves in the art and science of medicine.

All of our illustrious predecessors in the field of medicine, those to whom we point with pride and honor as the great leaders in the alleviation of human suffering and the prolongation of human life, have had a keen sense of the obligation they owed society and the opportunity afforded them to serve their fellow-men.

NOTABLE NAMES IN MEDICAL ADVANCEMENT

I need but call to your attention such outstanding examples as Hippocrates, whom we delight to call the Father of Medicine, and the embodiment of his high conception of the calling of the physician in the Hippocratic oath which forms the very basis of our present code of ethics; to Pasteur and Tyndale, with their revolutionary discoveries in the field of parasitology; to Semmelweis, and our own doctor and poet, Oliver Wendell Holmes, whose untiring efforts and sacrifices laid the foundation for aseptic midwifery; to such indefatigable workers as Robert Koch in the field of tuberculosis; to Lord Lister in the field of aseptic surgery; to Klebs and Loeffler in the field of diphtheria; to Laveran and Sir Ronald Ross in the field of malaria; to the Commission to Havana under the late Major-General Leonard Wood and their work in yellow fever; to Colonel

Gorgas in his work of sanitation in the Panama Canal zone.

A mere recital of the names and a reference to the field in which these men worked calls to your minds the many problems that have been met and satisfactorily solved by the individual or cooperative efforts of those who have preceded us in the efforts to help man solve his problem—how best to conserve health and prolong life.

Other individuals and organized groups have contributed to the result in these and related fields of science and investigation which have brought about man's present condition of health and happiness.

Without in any way desiring to detract from the results achieved by other workers seeking man's betterment, we need have no hesitancy in saying that the achievements of organized medicine have not been surpassed by any other group of workers in the world's history.

While we point with pride and satisfaction to past achievements, we realize that new and equally important problems require our most earnest consideration. We cannot rest on our oars or be content to follow in the footsteps of our predecessors. New and changing conditions require new viewpoints and new angles of approach. Men often fail to make satisfactory adjustments in response to the demands and requirements of these ever changing conditions. The medical man is not gifted with any supernatural ability with which he can guide his footsteps so that he may be protected from the many pitfalls to be found in the course of human advancement. Only as we occasionally pause, reconnoiter or take stock, can we determine whither we are going or what is our ultimate goal.

Annual events, such as this, afford opportunity for pause and reflection and perchance for a re-survey and a redirection of our course, with the thought ever in mind, how can we best be of service to our fellow-men. What are the new problems pressing for solution and how can they best be solved?

The medical profession has never had greater opportunity to justify its existence or to minister to man's needs. The complex structure of civilization has added to our obligations and also to our opportunities. The great mass of humanity is now more than ever looking to us for help with a keener appreciation of the value of exact and scientific information. The call for information and guidance is insistent, and if we are true to our ideals and traditions we must see and meet this public demand for education in health problems. No other group of men are possessed of the information called for, and none other can meet the demand.

HEALTH CONSERVATION PUBLICITY

The public wants facts on health conservation; they are entitled to the facts, and the medical man alone can supply them.

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* Presidential Address, Utah State Medical Association, Thirty-Third Annual Meeting, June 24, 1927.

curative medicine. We are asked, in return for the education conferred on us, to use our knowledge for the conservation of human life, for the promotion of human efficiency and human happiness. Efficiency and happiness cannot be enjoyed in the absence of health.

Many medical men in the past and many of us at the present time feel that we have discharged our obligations (if we admit that we have any) when we have responded to the call of the sick and have done what lies in our power to alleviate their distress.

I do not wish in any way to minimize the importance of this service to suffering humanity, nor to take from the credit due the practitioner who gives of his time and talents, often without thought of material recompense, but I do wish to emphasize the importance of responding to the call that comes to us in no uncertain language from the great mass of humanity who want to know how they can be helped to live so as to maintain a reasonable degree of health, efficiency and happiness. How to be healthy, efficient and happy, is coming to mean as much to many men as how to have a kidney or a heart lesion diagnosed and treated. The call that comes to us for a physical examination of the apparently well is but one of the new and pressing problems which we are called on not only to meet, but to foster, encourage and direct. This demand and opportunity which comes to us for a new and broader service has resulted largely from the activities of official and non-official health agencies. It is our duty to join hands with these organizations, and by directing them bring about a closer cooperation and a more unified effort to serve the public in a safe, sane and scientific manner.

There is no basic reason for differences between medical men and official or non-official health organizations—each exists in response to this same call for help coming from the same source—the great mass of humanity. We should get together, compose our differences, and with a united effort seek only the best means of bringing accurate scientific data to the solution of problems of human welfare and human happiness.

MEDICAL LEADERSHIP IN PUBLIC HEALTH WORK

Health organizations are established conditions. They exist in response to a public demand for help. They are factors in the complex structure of modern civilization, making for better hygienic conditions and better health, and we must accept them. We can best serve the public, as well as promote our own interests by becoming a directing force in these organizations. Doctor DeSchweinitz, past president of the American Medical Association, in a recent address, said the public could be prevented from straying down the wrong path only if the medical profession had some dignified proper method of giving out the right information in the right way. He says that the time has come in modern medicine when there must be some kind of a properly regulated publicity. The present methods are not satisfactory.

The medical man has the specific, definite,

scientific information required of a leader in this movement. So long as he uses the information acquired in a privately endowed or a publicly supported educational institution for professional gain or profit, and does not use it for the uplift and benefit of his fellow-men, he is not living up to the high and noble ideals of the profession, nor is he repaying his obligation to the community which educated him. His education has been acquired through his own efforts, it is true, and he has paid a nominal fee for his tuition; but the biggest factor in his education—the opportunity for acquiring this information—was made possible by the community. For this he is greatly indebted and holds a trusteeship for the proper formulating and carrying out of plans for individual and community health education. This trusteeship must be sacredly discharged. If we fail in this we not only miss an opportunity for real service, but we fail to take advantage of an opportunity to bring about a closer personal contact and a more intimate friendly relationship with our patients, which is so important if we are to be of most service to them.

The work being done in the field of the pediatrician where the united efforts of boards of health, lay organizations and the medical profession are being directed to health conservation, or keeping the well baby well, shows very definitely the trend of civic medicine.

The greater part of the increase in the span of life in recent times has resulted from these efforts.

Here we see the three forces—official health organizations, lay organizations, and medical men working in harmony for the welfare of the baby.

These same forces, strengthened by the efforts of departments of education, are now pushing the problem forward to care for the preschool child, a field until now much neglected. Remedial defects are to be remedied, the child is to be protected by inoculation and vaccination against communicable diseases, and in every way possible prepared to fit into the field of keen competition, so characteristic of our times.

The child is coming into his birthright.

We rejoice in these accomplishments and wish those directly interested godspeed in their efforts.

In the dental field like efforts have produced like results, until now the public call for help has outdistanced the dental profession and dental clinics have had to be set up by boards of health or departments of education to care for the baby teeth. These clinics are established in response to a demand for help only when the dental profession fails to meet an insistent demand.

In the field of general medicine tendencies are in the same direction. Official and non-official health organizations are using their every effort to educate the general public in health conservation. The American Medical Association through its officers and committees, particularly its Bureau of Health and Public Instruction, the American Society for the Control of Cancer, the American Foundation for Health, the Woman's Foundation for Health, the Gorgas Memorial, and many other organizations, are stimulating ac-

tive interest in health education. As a result of these efforts, we find in the daily press and in current periodicals articles treating in a scientific and dignified manner, various phases of the better health movement. We should avail ourselves of these various agencies at our disposal to facilitate public education on health problems. The daily press is not only willing but anxious to publish any worthwhile authentic health information of general interest.

CENTRAL PUBLICITY BUREAUS

Headquarters of the A. M. A. has become a recognized source from which much press news of interest is obtained or verified. If state societies could have a central bureau from which the local press could either obtain or verify news items of real worth, much good might be accomplished. This same central bureau should be authorized to obtain from reliable authorities material suitable for public lectures, to be delivered before groups or organizations, asking for or interested in general health problems. These lectures, or talks, should go out as either prepared by or sponsored by this central bureau. Talks suitable for broadcasting should also be prepared or sponsored by this same bureau. In having these articles prepared, sponsored or authorized by this central bureau, little or no chance is afforded for personal propaganda and the public is given well-authenticated definite facts on health problems, or told where reliable and worthwhile information can be had. These prepared or authorized talks would contain the facts thought to be most worthwhile, and when given under the authority of the state society would carry much more weight to the listeners than if prepared by a local man, and the organized profession, as well as the individuals composing it, would be put in closer touch with the public.

This central bureau could keep in touch with our colleges and universities, churches and school systems, clubs and other organizations, and make use of such facilities as they have to offer for well-directed health education. Much more of real value will come to both the profession and the public from directing these well-meaning efforts to satisfy a call for help than by simply opposing them or forcing them out of the field. Every well worthwhile effort at conservation of human life or human energy should receive support and proper direction from the medical profession.

The medical man is by education and training fitted for membership in and a directing force of the various welfare organizations. These organizations have as their purpose the welfare of the various social misfits; in all of these groups there is a considerable amount of physical or mental illness which accounts for much of their particular maladjustment. Many of our social-minded citizens from other callings are giving of their time and their best efforts to the solution of the problems involved in these groups. Medical men do not avail themselves of the oppor-

tunity to serve on their boards where they could be of the greatest help in directing the efforts where medical problems are involved. President Coolidge, in the opening meeting of the recent A. M. A., said: "No one can doubt that if humanity could be brought to a state of physical well-being many of our social problems would disappear."

The close human contacts secured by this means would give us a viewpoint which many of us do not have at present, and I am sure would enlist our support in securing better facilities for handling many of these misfits who are so much in need of our help. The welfare of the individual and the community is the sole reason for the existence of the medical profession. We not only hinder our own progress but we impede the progress of civilization when we hesitatingly stand at the crossroads afraid to make the readjustment necessary to fit in with the changing times and conditions. The doctor should and must furnish the laity with safe, sane and reliable information on matters pertaining to both physical and mental health.

We fail to realize, or are unwilling to admit, that the various cults exist in response to the same call for help which is responsible for the existence of the medical profession. We marvel that individuals with little or no foundation in the fundamental sciences, and with only very abbreviated courses in some special lines of manipulation or adjustment, can sell their wares to the public. Can it be because we have not taken the public into our confidence and given them full and reliable information as to what we have to offer in the way of help? Is it because we in our specialization see the pathologic process only and fail to see the man? It is said on good authority that seven out of every ten patients coming to us for help need, besides medical or surgical treatment as such, some social readjustment or emotional relief. The Boston Associated Charities finds that thirty-six out of every fifty persons on their list is in need of some psychiatric treatment. Are we functioning as healers of the body only and not as healers of the soul? Dr. Nicholas Murray Butler, in a recent address, said: "The power of personality, the power of human sympathy and understanding and contact are something without which mere scientific knowledge and scientific skill must always be relatively helpless in dealing with human beings."

There surely is a call and an opportunity for help from 15,000 to 20,000 children in the United States die every year from diphtheria; when 30,000 to 40,000 individuals in the United States die from appendicitis; 100,000 die from cancer; and the cardiovascular and renal diseases are steadily on the increase. It is said that one-third of the present deaths could be prevented or postponed by present known methods, if rightly used.

Not all of this appalling sacrifice of life is from lack of information on the part of the medical profession, nor is it due to indifference on the part of the public. The principal reason is that

we of the medical profession have not educated the public to the necessity for early diagnosis and treatment by well-qualified men.

PERIODIC HEALTH EXAMINATIONS

The periodic health examination is the foundation of every health program, and medical men should assist in every way possible to educate the public to its importance as well as to the fact that the family physician is well qualified to make the examination. If we fail to make use of our opportunities in this line, we are apt to see commercial agencies take over this work, as they are already doing, and we will be required to serve as their hirelings.

The public have made possible our training. Are we repaying our obligation to them? Progress is made by trial and error, and we seem willing to let the "dear public" progress in this way. We forget that we are the recipients of all that has been learned in the school of medical experience, in past ages of trial and error, with its incalculable human sacrifices. We are remiss in our sense of duty if we fail to impart to the public this knowledge accumulated through the ages, and which we have come into possession of through their efforts in our behalf.

The plea that I make is for a better appreciation on the part of the medical man of his civic obligations. Because of his special training he is qualified for leadership in all movements having as their purpose better health, physical or mental. All well-meant public health movements, official or non-official, should receive his support and he should be a directing force in shaping their activities and in securing cooperative efforts.

The education of the public in physical and mental health should be made a business proposition with the organized medical profession.

Are we too much concerned with personal interests and too little concerned in human welfare? The practitioner of medicine should be a teacher and an educator as well as a healer of ills. He should see his greatest opportunity, as well as his greatest obligation, in prevention rather than in cure.

Let me quote from an address of past President Wendell C. Phillips delivered before the House of Delegates at the recent meeting of the A. M. A.:

"The medical profession should throw off its mask of reticence and its shrinking attitude toward reasonable publicity concerning health education. Professional policies narrowly conceived can never successfully oppose the rightful interests of the public. It is time to strike the shackles not only from the shrinking attitude of the medical profession toward the public espousal of educational programs, but also from its attitude toward the lay press, the radio, and great assemblies of truth-seeking people. The physician has no right to conceal from non-medical readers the great body of news of the highest importance which is his to communicate."

601 Medical Arts Building.

LYMPHOBLASTOMA*

By HAROLD B. THOMPSON, M. D.
Seattle, Washington

LYMPHOBLASTOMA is a term of fairly recent origin and used to cover a number of affections previously described under various names as Hodgkin's disease, anemia lymphaticus, pseudoleukemia, aleukemia, lymphadenoma, Banti's disease, malignant lymphoma or lymphosarcoma. Modern writers tend to include these various clinical diseases under the name lymphoblastoma and to consider each variety a different clinical manifestation of the same primary condition. True leukemia has been included under the same terminology by some authors, as several cases apparently of true Hodgkin's disease have been observed to develop in their final stages, clinical findings characteristic of leukemia. Other writers claim a distinct difference between the more or less benign forms of the disease, and those with definite malignant manifestations, as malignant lymphoma and lymphosarcoma. It certainly is very difficult to draw a definite dividing line between these two groups, and it appears more plausible to the writer to explain the different clinical course by a variation in virulence of the disease itself or in the susceptibility of the patient.

FIRST CASES DESCRIBED

Hodgkin first described a series of these cases in 1832; since this time, and especially during the past twenty-five years, many writers have added much to our knowledge of this interesting condition.

Osler's definition of Hodgkin's disease is "an affection characterized by enlargement of lymph glands and spleen, with formation in the liver, spleen, and other organs of nodular growths and associated with a secondary anemia without leukemia."

The disease frequently starts in the cervical glands and in such cases may be preceded by inflammatory irritation of the throat. Its true nature is unknown; but seems most likely to be infectious in origin. The condition may also start in the abdominal lymphatics; such an ascending involvement some writers claim to be usually more malignant in character, following the clinical course of lymphatic sarcoma rather than the more benign form of Hodgkin's disease.

Histologically this condition presents a fairly characteristic picture, with proliferation of the endothelial and reticular cells, formation of connective tissue and lymphoid cells and the presence of characteristic giant cells and eosinophiles. It is not the purpose of this paper to recite the ordinary symptoms and course of the disease, but to bring to your attention some of the unusual manifestations and to stress the fact that it is of more common occurrence than usually considered.

CASE REPORTS IN LITERATURE

From the literature I have gathered several very unusual forms of the disease. C. A. Hedblom in

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Surgical Clinics of N. A., 1926, reports a case with splenomegaly but without any lymphatic gland enlargement. The disease was characterized by such extreme anemia and leukopenia that several transfusions were required before a splenectomy could be performed, under a diagnosis of splenic anemia. Two months after the operation lymphatic glands became palpable for the first time. The diagnosis of Hodgkin's was then made on section of one of the glands removed. The patient, after a stormy convalescence complicated by a subphrenic abscess and empyema, recovered from the operation; there was considerable improvement of the blood picture, but no apparent effect on the course of the Hodgkin's disease. George W. Holmes and Richard Dresser, in *Radiology*, July, 1926, reviewing the literature up to that time, reported twenty-two cases involving the gastrointestinal tract; twelve of these involved the stomach. All of these cases simulated carcinoma, and a diagnosis could not be made before biopsy. Eight additional cases involving the stomach were reported by these authors under the following classification:

1. Generalized glandular enlargement with secondary gastric involvement.
2. Primary involvement of the stomach.

The x-ray appearance in these cases could not be differentiated from carcinoma, and it is highly probable that some of the remarkable improvements recorded from radiation in abdominal carcinoma may be ascribed to our inability to differentiate the two lesions roentgenologically.

Verne Graber in *American Heart Journal*, June, 1926, reports a case of acute Hodgkin's disease in which the vagus nerves underwent degeneration from pressure of enlarged mediastinal glands and thereby caused paroxysmal tachycardia. Dresser, in the *American Journal of Radiology*, June, 1926, reports ninety-five cases of lymphoblastoma, four of which apparently involved the sternum primarily and showed no other demonstrable lesions. The photographs in these cases showed enormous disfiguring enlargements of the sternum. Holmes in the *American Journal of Radiology* reports numerous unusual manifestations such as lymphoblastoma of dura, of jejunum, and one case involving the conjunctiva with no other apparent lesion. Pfahler reports a case of sacroiliac involvement, and Parker a case of localization in the vertebral bodies, simulating tuberculosis or metastatic carcinoma. Minot and Isaacs, writing in the *American Journal of Medical Science*, August, 1926, report that gastrointestinal symptoms were the first symptoms complained of in 25 per cent of 477 cases, and were the early and severe symptoms in 20 per cent of cases. Some secondary symptoms—and not uncommon—are caused indirectly by pressure, such as jaundice by pressure on biliary ducts or infiltration of liver, glycosuria by pancreatic involvement, pains in the legs by pressure on lumbosacral plexus. The latter may be an initial and severe symptom. Genitourinary symptoms due to obstruction of ureters or kidney involvement are usually late. Pigmentation simulating Addison's disease may result from suprarenal involvement. Itching, pruritis, and various

other skin lesions are quite common, appearing in about 15 per cent of cases.

LIFE EXPECTANCY

Minot and Des Jardins in *Radiology*, 1926, offer some interesting facts regarding life expectancy in lymphoblastoma. Of 477 cases included in their report 401 were dead. The average duration of life was 2.76 years after onset of symptoms; about 10 per cent of the cases survived for more than six years. True Hodgkin's disease began most frequently between the ages of 20 to 24. The next most frequent age period was 35 to 40; however, most of the cases developing late were some other form of lymphoblastoma and in general were of the more malignant variety. The average life expectancy in true Hodgkin's is three years and two months; in lymphosarcoma it is two years and four months. This small difference in expectancy hardly warrants a distinction between the so-called benign and malignant forms of the disease.

TREATMENT

Practically the only drug having any influence on the disease is arsenic, and its effect is very unreliable. Some form of radiation therapy certainly produces remarkable temporary palliative effects; however, a comparative study of a large number of cases, treated and untreated, fails to show any definite increase in longevity by such therapy. The effect of radiation in reducing glandular enlargement in this condition is so marked as to be practically diagnostic. Diagnosis through biopsy is not feasible in all tumors; if such a tumor fairly melts away under radiation, it most probably is some form of lymphoblastoma.

It was my good fortune to have with me in consultation in six of my own cases, Doctor Yates of Milwaukee, while on a visit to the coast about three years ago. His routine procedure in these cases is first, to remove every possible focus of infection, as teeth and tonsils; this is done whether any definite disease can be located there or not. Secondly, to remove surgically as much hyperplastic lymphoid tissue as is possible. The spleen is removed, as this is the largest mass amenable to surgery; this is followed by an extensive removal of cervical, axillary and inguinal glands. My experience cannot be compared to his, but I could never adjust myself to the reasonableness of such a procedure. Surgical removal of glands is limited to the superficial or external lymphatic system; it cannot be done extensively in either abdominal or mediastinal involvement; such partial removal is distinctly palliative. Radiation, on the other hand, can reduce the glandular enlargement in both operable and inoperable sites. With a life expectancy of only three years, regardless of method of treatment, such a prolonged and extensive surgical program must show more decided advantages to warrant its general application. I am quite in accord with his views on eradication of possible foci of infection, but only if there can be a reasonable relationship of cause and effect.

The diet should be wholesome, easily digested, and rich in such vitamins as are present in fresh vegetables. Sunlight is also very beneficial even to the extent of exposing the entire body surface to

direct sunlight for an increasing period of time daily. For the same reason ultra-violet light might be useful. My own conviction, however, is that the same results may be obtained by x-ray, and much more efficiently.

COMMENTS ON TWENTY-FOUR CASES

During the past five years I have had twenty-four cases of lymphoblastoma, including the leukemias. The average age was 33 years. Of this number, one was in the first decade of life, two in the second, six in the third, five in the fourth, seven in the fifth and three in the sixth. All of the leukemia cases were over 35 years of age and most of them over 45, while the true Hodgkin's cases were mostly in the third decade. These figures tend to show the greater liability of leukemia symptoms if the disease begins later in life. The only case of true lymphosarcoma was first noticed as an enlargement of the inguinal glands, while practically all cases of true Hodgkin's cases first developed enlargement of cervical nodes. This tends to confirm the idea that infection entering through the tonsils is more likely to be less malignant than the infection through the abdominal route.

So many of the cases were lost sight of after receiving only a short course of treatment, that my figures regarding length of life are worthless. At least five of these cases had been previously treated for tuberculous glands, and one for syphilis.

The highest white count was found in a case of lymphatic leukemia, the white cells reaching a total of 1,118,000 with 89 per cent lymphocytes. The lowest red count, 250,000, was in another case of lymphatic leukemia.

Between these extremes were all grades of variations in both the white and red count. In my experience the differential count is fully as important as the total count. Several cases at the beginning of early general systemic symptoms in the intervals between successive series of x-ray treatment showed a relative increase in lymphocytes before any change was noted in the total white count.

REPORT OF TWO CASES

I wish briefly to report two case histories:

The first, Mrs. A., age 45, is presented because she showed an unusual reaction to x-ray therapy. She had noticed gradual enlargement of cervical glands for several months, but gave no other signs or symptoms. Physical examination was entirely negative except for the rather large cervical glands on both sides and moderately enlarged axillary glands. Three days after a very small initial dose of x-ray to one side of the neck, these glands showed a marked increase in size, were tense and very painful. The dose was then cut in half for the opposite side; this also caused a considerable increase in size, but not so marked as formerly. As the axillary glands were so much smaller, the original small dose was applied to them. Only a slight enlargement of the axillary glands followed. However, even the small amount of x-rays which filtered through the shoulder girdle and reached the cervical glands was sufficient to produce a marked increase in the swell-

ing of these glands. After the first reaction all of the glands gradually subsided to practically normal at the end of one month.

The second case, Mr. C., age 24, shows an unusual distribution of metastatic lesions in lymphosarcoma, as well as the remarkable local effects of radiation. History was essentially negative except for tonsillitis and tonsillectomy in 1924. In November, 1924, there appeared in left groin a small tumor mass which gradually enlarged. Three months later there were noticed several small subcutaneous nodules in the back and also a swelling of one foot. In July, 1925, eight months later, the inguinal gland, which was then the size of a small orange, was excised and a diagnosis of round-cell sarcoma was made on microscopic examination. At this time he exhibited a general adenopathy with numerous subcutaneous nodules in the scalp, on the back between the scapulae, and also a tumor mass developing in the right foot. Another large mass was removed from the back at about the same time. X-ray treatment was instituted, especially over the swelling of the foot. This tumor growth had spread the metatarsal bones apart and caused him to use crutches. A few treatments caused this tumor and numerous superficial nodules entirely to disappear. The deep pains in the back, however, increased in severity and there was gradual loss of weight and strength. After three months under my care he went East and received treatment under Doctor Coley and also Doctor Scott. He died in less than a year from the onset of the symptoms.

This case illustrates the unusual distribution of the metastases—subcuticular nodules especially between the scapulae, nodules in the scalp and a large tumor between the metatarsal bones of the foot. It also illustrates the remarkable improvement which can be obtained by x-ray therapy; improvement not only in the local masses specifically radiated, but also on distant tumors, part of the general systemic involvement. In spite of this specific improvement there was little, if any, influence on the course of the disease.

CONCLUSIONS

1. Lymphoblastomas are of more frequent occurrence than usually considered.
2. Earliest manifestations may occur in practically any portion of the body.
3. Any or all symptoms vary between extreme limits.
4. There is no definite dividing line between the variously named clinical diseases included in this group.
5. Life expectancy is probably not altered by treatment, although there are such wide variations in the duration of the disease that definite conclusions are not warranted.
6. X-ray is practically the only remedy aside from general measures which has a definite influence on the disease.

BACKACHE DUE TO SEMINAL VESICULITIS AND PROSTATITIS*

By MILEY B. WESSON, M. D.
San Francisco

DISCUSSION by *Thomas A. Stoddard, M.D., San Francisco; F. S. Dillingham, M.D., Los Angeles; R. Campbell Begg, M.D., Wellington, New Zealand; H. A. Rosenkranz, M.D., Los Angeles; Robert V. Day, M.D., Los Angeles.*

NO type of pain has caused the medical profession more embarrassment than backache, or diverted more of our patients to the various pseudomedico-religious cults, even though in the great majority of cases backache means little more than a short period of physical unhappiness easily remedied by any placebo such as kidney pills, porous plasters, electric apparatus or massage. A few years ago the court calendars were clogged with "railroad spine" cases and miraculous recoveries followed their settlement—the "Gold Cure." Now, employers of labor and carriers of insurance are concerned about backache more than any other lesion because of the possible long periods of disability that follow trivial injuries.

BACKACHES IN RE INDUSTRIAL INSURANCE

With the inauguration of compulsory compensation insurance practically all salaried people have been included within the provisions of the law. Consequently all doctors are being forced to become interested in industrial insurance if they intend to continue in the private practice of medicine.

Because of the rules of the all-powerful labor unions prohibiting physical examinations before employees are hired, workmen are accepted as 100 per cent fit. Following a slight injury or strain an arthritis of the spine recurs or develops, secondary to a focus of infection that may have been present for years. The man then becomes a charge not for weeks but for months, or years. The employer or his insurance carrier pays compensation, hospital fees, doctors' bills, physiotherapy, etc., so that back cases represent a very important outlay of expenditures. The bony changes that have taken place in the spine over a period of years may not be discovered until after the damage is beyond repair, but if the focus of infection that was responsible for the arthritis can be eradicated the pain will disappear and the man, although not "cured," can be put back to work in as good condition as before his "accident." It has been found that a large proportion of the cases of low backache have an infection of the prostate and seminal vesicles and that as soon as free drainage is established the backache disappears. The term prostatitis is commonly used in the literature to include seminal vesiculitis. I want to emphasize the fact that although the primary infection is in the prostate it is the secondarily

infected seminal vesicles that are responsible for the metastatic infection.

STATISTICS

The series of statistics in the literature are of questionable value because of their meagerness both as to numbers and details. As yet no medical director of an industrial accident commission has published an analysis of the thousands of cases that have been thoroughly studied and recorded in his files. During the past five years it has been my privilege to see as a consultant a large number of cases of low-back pain that had not responded to the routine orthopedic treatments and physiotherapy, and consequently were being investigated as to the question of focal infections. This paper is based upon that experience, as well as a review of the literature of the past twenty years.

EARLY HISTORY

The possibility of non-venereal seminal vesiculitis as the focus of infection in cases of low-back pain is not generally appreciated by the industrial surgeon. This is easily understood when it is realized that scientific urology is only a few decades old. Lognean, in 1815, described chronic inflammation of the prostate as a complication of gonorrhea, but other diseases of the prostate were ignored until Lallemand, in 1836, called attention to a category of maladies, previously attributed to mental and nervous diseases, and noted the improvement of these neurotics after treatment of the prostate and seminal vesicles. Following the publication by Young, Geraghty, and Stevens twenty years ago of a detailed study of 358 cases of chronic prostatitis, the general practitioner began to be interested in the disease. However, it was not until the comparatively recent illness of a President that the word "prostatitis" was considered sufficiently respectable to occupy the head lines of the front page of the newspapers.

ETIOLOGY

Even today most people believe that all prostatitis and seminal vesiculitis are of venereal origin. However, prolonged ungratified sexual desires, excessive physiological or abnormal sexual indulgence, with the attendant local engorged condition is an important etiological factor in all non-gonorrheal and most gonorrheal prostatitis cases. Sexual perversions, the practice of coitus interruptus, excessive masturbation or the frequent indulgence in the popular petting parties of the day are of more importance than gonorrheal infections as causes of prostatitis. In rare instances chronic prostatitis and seminal vesiculitis occur as a complication of general septicemia and other infectious diseases, and it may follow local trauma such as repeated vigorous prostatic massage, bicycle riding, or habitual sitting on cold marble steps. It is probably for this last reason that prostatitis is so prevalent in Baltimore. Opinions differ concerning the longevity of gonorrheal organisms in the seminal vesicles; however, second-

* Read before the Urological Section of the California Medical Association at the Fifty-Sixth Annual Session, Los Angeles, April 26, 1927.

ary invaders, with which the industrial surgeon is concerned, may be present for years.

Of course the question of posture as a factor is important. When we become tired, depressed or weak, we slump and assume the former attitude of our remote ancestors. There is a loss of muscle tone in the back, hence a predilection for pain in that region due to the added strain, and referred pain from a prostatitis augments this complaint.

Immediately after the publication of Billings' work on focal infections the subject became a rival of neurasthenia as a blanket to cover carelessness, loose thinking, and other clinical sins. The patient who had no clear-cut complaint was no longer casually treated for nervousness, but instead had to be very firm in order to keep his teeth, tonsils, appendix and gall bladder, and yet seldom did one have his prostate palpated. The inevitable reaction followed and now focal infections are of only casual interest to industrial surgeons. The employer of labor has only a slight acquaintance with the term neurasthenia, but "sacroiliac slip" and "sprained back" he knows only too well. The average backache is rarely primary or demands wholly the type of treatment given by the orthopedic surgeon, and only in a great while is operative interference indicated. Many sprained backs are secondary to infections of the genitourinary tract, but it is just as erroneous to attribute all to seminal vesicle infection as to say that all seminal vesicle infections are secondary to venereal diseases. Nielson, an internist, made a study of 200 patients who had a variety of complaints ranging from stomach trouble to sciatica, none of whom had genitourinary symptoms nor had had a Neisserian infection within two years, and was amazed to find that practically no prostate examinations had been made although many of the patients had been through diagnostic clinics of national reputation. Only fifty-eight of the patients admitted a previous gonorrheal infection, but eighty-five had pus in their prostates.

In the past, backache was considered a characteristic complaint of women, but as a result of the popularity of gynecologic examinations with resultant appropriate treatment this is no longer true, there now being two cases of backache in man to one in woman. Michel reported that 75 per cent of the cases of backache in men are secondary to prostatitis and seminal vesiculitis due to disturbed sexual life or the results of venereal diseases.

PATHOLOGY

Fibrositis is due to a hyperplasia of the connective tissue with exudation and proliferation of the fibrous tissue elements. This inflammatory overgrowth in the tissues of the small of the back may undergo resolution and entirely disappear if the focus of infection is attacked early and eradicated. But if the treatment is neglected it may go on to organization and formation of adhesions, and thickening and contracture of the connective

tissue. The latter is what causes the stiffness of the spinal area involved.

Prostatic or seminal vesicle diseases cause backache through referred pains; or by means of metastatic infection with resultant local fibrositis or arthritis in the lumbosacral spine, thereby causing the patient to assume an attitude in standing or walking which increases muscular back strain; consequently the static element is often directly responsible for the pain in the muscles and ligaments of the back.

SYMPTOMS

The pain in the prostate and seminal vesicles is directly due to lack of drainage, just as renal colic follows interference with the free flow of urine from the kidneys. The wide distribution of referred pains from the prostate and seminal vesicles can be rationally explained, since the innervation is entirely sympathetic and parasympathetic. Head et al. have shown that the fibers ending in these organs arise from the tenth dorsal to the third sacral segments, so it is possible for prostatic and seminal vesicle pain to be referred to regions innervated by any of the corresponding spinal nerves. Because of a psychological error of judgment the diffusion error is accepted by the patient and the pain is referred to the surface of the body instead of to the viscera actually affected.

In Young's series of cases low lumbar back pain was the predominating symptom. One of the characteristic differential points of seminal vesicle backache is that the pain is made worse by pressure on the structures at fault, but back motions are not limited until arthritis develops. Particularly important in the lower back is the presence or absence of tenderness on pressure in the area where the pain is felt. If the two coincide it suggests that the diseased condition is localized, otherwise we are probably dealing with referred pain. Pain represents irritation of the sensory nerves supplying the affected area, or the nerve which has some connection with it. The seat of pain and the cause of that pain are not necessarily in the same situation. Infections may cause symptoms for years before x-ray changes will be manifest. Furthermore a spine that shows marked hypertrophic changes will often give no symptoms following the clearing up of the responsible focus of infection.

DIAGNOSIS

Notthafft first called attention to the fact that pus often does not make its appearance until from the second to the fifth massage, and indeed pus and normal secretion may alternate in a few cases. Long-standing infections are sealed in, and take several treatments to break down the barriers and release the pus and bacteria.

The average practitioner gains just as much accurate information about the prostate from a casual rectal palpation as does the ordinary urologist about the heart from looking at an electrocardiograph tracing. The fact must be emphasized that prostatic massage does not consist merely of inserting a gloved finger in the rectum and squeezing or rubbing vigorously. This was impressed upon me about ten years ago, when

one of my colleagues, who devoted "special attention to urology," told me that in six years he had never knowingly palpated a seminal vesicle but had merely massaged blindly on a full bladder and generally found that by having the patient void after the massage he had obtained secretion. This incident has been responsible for making me hesitate to accept all prostate reports, and therefore I was interested in the following paragraph from a letter by Charles Minor Cooper, clinical professor of medicine, Stanford University, published June 16, 1923, in the *Journal of the American Medical Association*: "For some years I had recognized that my finger was not long enough to enable me to elicit satisfactory findings concerning the condition of the seminal vesicles, and I had been in the habit of depending on the well-recognized genitourinary specialists for this information. It finally occurred to me that perhaps the physical limitations of these specialists might similarly be a bar to their efficiency in this respect, so I sent a number of these patients to a surgeon whom nature had endowed with unusually long fingers. The results have been highly gratifying. Many patients who previously had been examined with negative results by different well-trained urologists obtained drainage of hitherto unrecognized, pent-up, infected material, with consequent relief from their fibrositis."

TREATMENT

Straub says the doctor who treats the backache without clearing the prostate or other sources of toxemia is as guilty as a quack. There is perfect

agreement that the treatment of a patient who has a small stone in the ureter or a chronic seminal vesiculitis with measures to cure a local backache is inexcusable. It is true that the prostatitis and seminal vesiculitis may get better or the stone may pass and with it the backache may disappear in spite of the mistaken diagnosis and treatment; but where does such a practice differ from that of the charlatan? The average internist does not follow the teaching of the late Sir William Osler, to make a rectal examination on every patient. A microscopical examination of the urine in every case of backache should be routinely done, and if the centrifuged second glass of urine contains pus or organisms the genitourinary tract should be investigated for a focus of infection.

The treatment of prostatitis and seminal vesiculitis is as stereotyped as that of bleeding gums. After the dentist gets through with vaccines, fancy applications and explanations, he reverts to the use of a scaler, scrapes out the "tartar," and the gums heal. Sealed pockets of pus in the prostate and seminal vesicles must be drained. Seminal vesiculotomy was hailed at one time as a cure-all, but unfortunately all crypts cannot be opened and a pinpoint focus will continue to cause trouble. Vaccines, intravenous medications, etc., all have their place, but massage still remains the keystone of the treatment of prostatitis and seminal vesiculitis, and at best it is a non-surgical inexact procedure.

However, the individual with the backache must not be lost sight of because of the discovery of

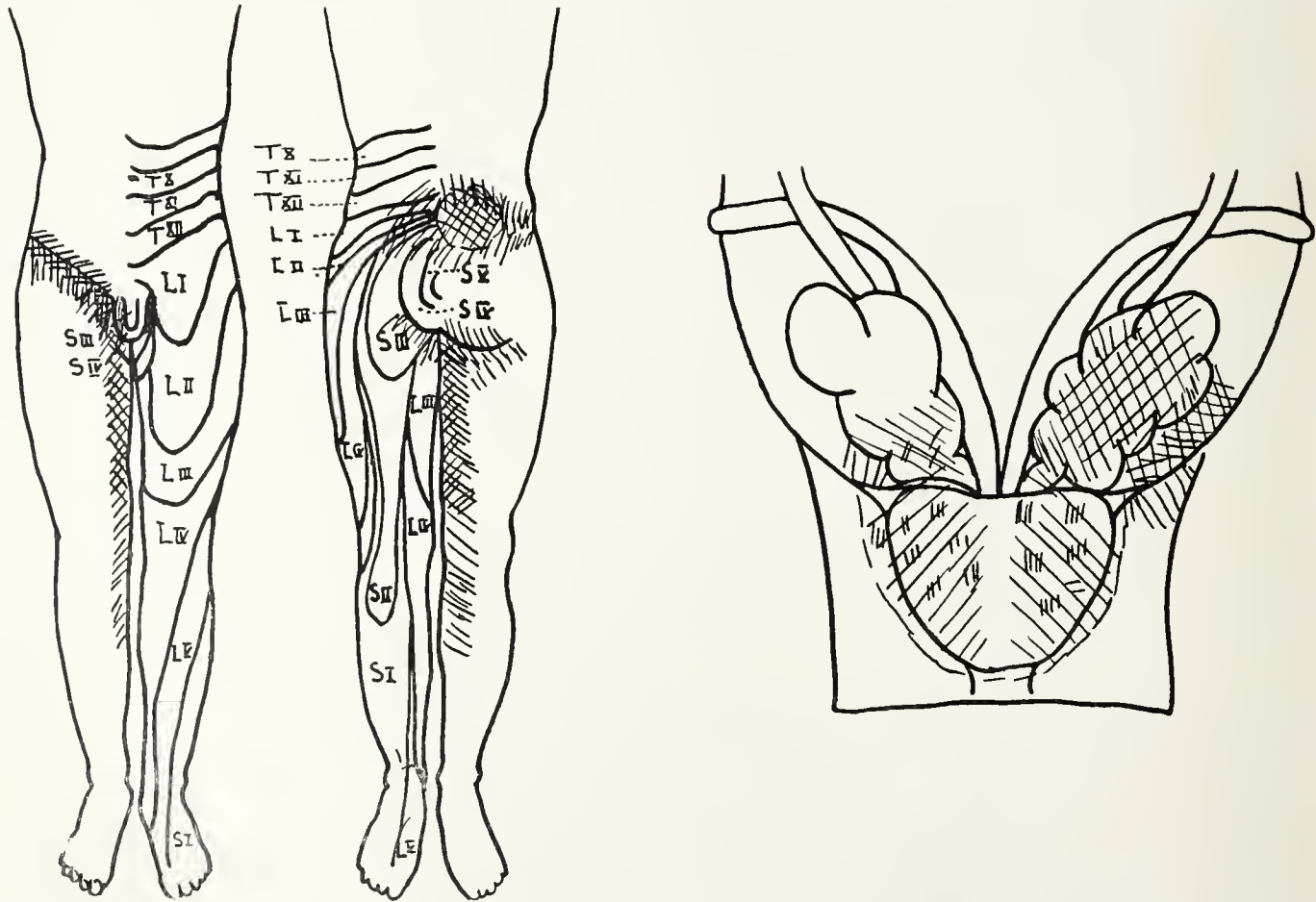


Fig. 1—Case 1. The left side shows the segmental skin fields according to Head et al. The painful areas described as "sprained back, sprained tendons, and rupture" correspond to the skin areas of the first and third lumbar nerves. The prostate was enlarged and contained indurated nodules. The right seminal vesicle was markedly involved and was pulled downward and outward by dense adhesions. The severity of pain and amount of induration is indicated by the shading.

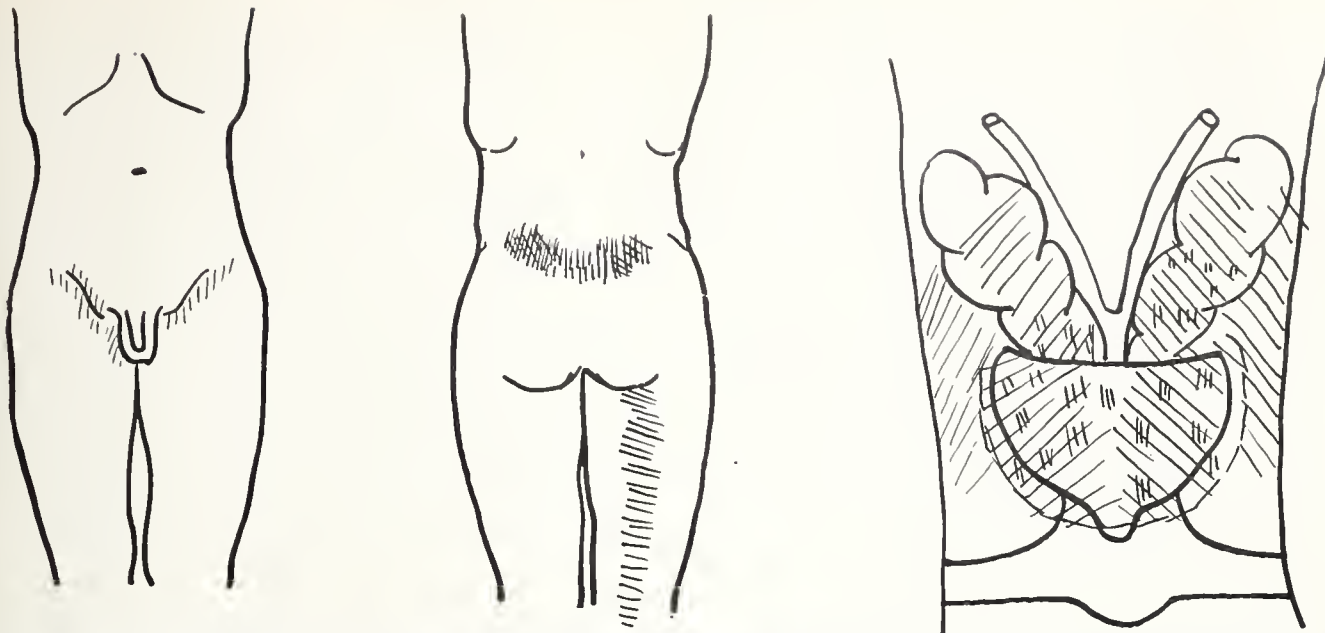


Fig. 2.—Case 2. The patient complained of "lumbago" and "sciatica." The areas of pain indicate that the (right) first lumbar and second sacral nerves are involved. The prostate and right seminal vesicle are the sources of infection, and all pain disappeared as soon as drainage was established.

his seminal vesiculitis. If the man is returned to work early, psychology and suggestion are of importance. A friendly interest and a constant effort to stimulate the individual to make an attempt to do more without too much disparagement of his complaint is very important.

The following brief case reports of backache characterize some of the complications that follow non-venereal prostatitis and seminal vesiculitis.

CASE REPORTS

CASE 1—(No. 390), S. O. R., 45, married, laborer, referred November 6, 1924, by Dr. L. O. Kimberlin to determine if a focus of infection was present that might be responsible for the complaints of sprained back, sprained tendons in the right leg, and rupture, the orthopedic examination being negative (Fig. 1). He gave a history of helping to lift a scaffold high above his head seven days before. During the maneuver he noticed a catch in the right leg, in the back, and in the right groin.

The personal history was unessential except that although he denied all history of venereal diseases he admitted excessive masturbation as a youth, the indulgence in frequent unsatisfactory petting parties as a young man, and coitus interruptus during his married life. For a number of years he had suffered from an indefinite pain in the lower abdomen which had been diagnosed as "stomach trouble." Examination: The urine contained shreds, pus, and bacilli. Both inguinal rings were dilated, but there was no impulse on coughing. There was a small left varicocele and bilateral, enlarged, tender spermatic cords; pain over the sacroiliac region and extending down the inner side of the thigh from the right Poupart's ligament to the knee. The prostate was large, tender, and contained many indurated nodules on deep palpation. The seminal vesicles were enlarged and pulled downward and outward by adhesions, the right being the most prominent. The expressed secretion contained no spermatozoa but masses of pus, and a stained specimen showed bacilli. When his prostate was massaged he complained that it felt as if a hot iron extended through to the groin and then the pain spread down to the knee, the back pain being aggravated at the same time. On the following day he reported that his pains had very much decreased. After the prostate had been massaged a few times all symptoms disappeared and he returned to his regular duties.

CASE 2—(No. 64), H. R. C., 25, divorced, bank teller, referred by Dr. H. H. Markel, August 9, 1926, because

of pain in the lower back extending down the course of the right sciatic nerve (Fig. 2). At times he appeared to lose control of his leg, and it had a tendency to buckle under him so that he feared to walk without a cane. He grew progressively worse under appropriate orthopedic treatments, so a search was started for a focus of infection.

There was no history of venereal diseases or excessive masturbation. This patient had been examined April 25, 1922, preceding his marriage, and was found to have a normal seminal vesicle and prostatic secretion. He was highly sexed and married a frigid woman. Throughout the four years of his married life he was permitted to have intercourse once every three months and during the intervening periods suffered from frequent prolonged genital engorgement. Examination: Urine contained shreds in the first glass, the prostate was larger than normal, with indurated nodules throughout; the seminal vesicles were enlarged and pulled downward and outward by adhesions, and deep palpation was exquisitely painful. The expressed secretion contained no spermatozoa, but was 100 per cent pus, some of the clumps apparently being casts from the vesicles.

The treatment consisted of routine massage, irrigations, instillations, etc., and within ten days all pain had disappeared and the cane was discarded; a few weeks later the belt was laid aside, and at the end of two months he drove an automobile 900 miles in thirty-six hours without any discomfort.

CASE 3—(No. 740), C. L. R., 34, single, lawyer, complained of pain in the back and groins of eleven years' duration. There was no history of venereal diseases. As a youth he practiced masturbation in moderation, and this was followed by a practically continent sexual life. Eleven years ago, following a "wine, women, and song" party, during which he had intercourse once, he developed urgency, dysuria, strangury, pain in the groin, and back. He consulted an eminent eastern urologist, who found nothing pathological. Two years later, following a similar celebration, the same symptoms returned. He had several "complete" physical examinations which disclosed no foci of infection other than impaired spleenoids, which were surgically drained without any effect upon the arthritic symptoms. He was ordered to a hot climate, and spent four months in the Arizona desert without appreciable effect.

Because of the association of bladder symptoms and backache he still was unconvinced, despite the numerous negative urological reports that he did not have a focus of infection in his seminal vesicles. Upon his return from the desert vacation, as a matter of diagnostic interest he had intercourse and there was a

flare-up of his arthritis and a recrudescence of all of his former bladder symptoms. Examination: Urine was negative except for shreds in the first glass. Prostate was large, tender, and contained indurated nodules on deep palpation. The seminal vesicles were pulled downward and outward by adhesions. The expressed secretion contained masses of non-motile spermatozoa and large clumps of pus lying between the strands of mucus from the seminal vesicles.

Following massage the back symptoms have practically disappeared, but at intervals he still is conscious of his left vasitis.

CASE 4—(No. 555), C. E., 59, married, retired clergyman, referred by Dr. Wallace I. Terry on August 28, 1925, because of acute retention of urine precipitated by an automobile trip. He was wearing a steel back brace to which he had just been promoted from a plaster cast, and stated that for the preceding seven years he had been constantly in the care of various orthopedic surgeons. Furthermore he had long noticed a direct relationship between the back pains and his urinary disturbances. He denied a history of venereal diseases, but admitted excessive masturbation before marriage, and following the arrival of the desired offspring he practiced sexual sublimation with the resultant loss of all sexual desires. Examination: There was an infected residual urine secondary to a benign prostatic hypertrophy and the prostatic secretion contained 100 per cent pus. A perineal prostatectomy was done with immediate and apparently permanent cessation of all backaches. The operative incision evidently drained the foci of infection responsible for the backache. Incidentally, a year after his operation he reported a youthful renewal of his long-lost sexual powers, which eventually resulted in his seeking advice as to a presumable pregnancy.

SUMMARY

1. With the growth of compensation insurance new treatments came into vogue. Whereas in the past the workman with the lame back represented either a charity patient or the source of an expert witness fee, in case the damage suit was won, he is now the source of considerable income primarily because of the physiotherapy. While his back is daily exposed to the rays of the Alpine lamp, a walled-off infection in his seminal vesicles continues to pour forth toxins and the arthritis progresses. What the average back case needs is more diagnosis and less physiotherapy.

2. The prostate and seminal vesicles should be carefully examined in every case of backache. The liquid secretion ordinarily expressed by rectal palpation is wholly from the prostate, that from the seminal vesicles appearing as a viscous plug made up of mucus and spermatozoa, the motility of the spermatozoa varying indirectly with the virulence of the infection.

3. The acute infection invaded the prostate and later extended to the seminal vesicles. The original organism probably died out or was replaced by secondary invaders. The ordinary infection disappears spontaneously if there is drainage, and for that reason it is not unusual to find a normal prostate secretion and a plugged vesicle filled with a virulent infection.

4. Pain in the back and groins is a common complaint, and too often a diagnosis of sprained back and industrial hernia is recorded instead of seminal vesiculitis and sequellae.

5. All cases of industrial backache with seminal vesiculitis should be given at least a month of treatment as a therapeutic test.

6. Backache due to prostatitis and seminal vesiculitis is often temporarily aggravated by mas-

sage through the lighting up of a latent infection.

7. Trauma is blameless as an etiological factor in a large percentage of cases of "traumatic backs." Two elements must be investigated in every alleged traumatic backache: (1) Is there a backache? (2) Did trauma play any part in it? Industrial patients are just as prone to blame all of their aches on the last strain suffered as the average patient is to attribute his cure to the last medicine used or the last doctor consulted.

8. The patient is often the victim of false reasoning and is not a malingerer. He honestly believes that his backache of today is due to yesterday's work. He exaggerates his symptoms and he fears that if he does light work he will prejudice his claims for compensation.

9. The seminal vesiculitis was not due to the injury, but a slight strain caused an acute exacerbation and called attention to the infection. However, since the man's incapacity followed a strain the law requires that he be cared for and put back to work; not made perfect but returned in as good condition as before the strain. The orthopedic surgeon must put at rest the painful muscles, tendons, etc. Physiotherapy is of value, but the underlying cause of the trouble that exploded with the slight strain must not be forgotten. Insurance companies occasionally buy false teeth for a man because they know that cleaning up his mouth may put him back to work sooner than expected, and the plates are a good investment. The foci of infections must be eradicated be they located in the teeth, tonsils, sinuses, seminal vesicles, or what not.

10. No case of backache should be subjected to orthopedic operative procedures so long as his urine or prostatic and seminal vesicle secretion contains pus.

1275 Flood Building.

DISCUSSION

THOMAS A. STODDARD, M. D. (490 Post Street, San Francisco)—The gynecologists called our attention to infections of the uterus and its appendages, and their relation to backache. We have seen the benefits derived by their proper attention. Now come the urologists "doing their stuff," and calling attention to the fact that infections of the male homologous organs, i. e., the prostate and seminal vesicles, can produce the backaches the females have been relieved from and that many a backache laid to industry has been miraculously cured by relieving these organs of chronic infections. Doctor Wesson has tersely and properly described the anatomy, pathology, and symptoms of referred backache from infected pelvic viscera. One of the most potent causes of persistent backache is latent infective arthritis lighted up by a back strain of more or less, and often trivial severity. The foci of infection may have been present in a subacute state for years and not recognized, or may have been thought to have been cured. Most doctors neglect to examine the pelvic viscera by reason of mistaken delicacy, or because their attention has not been called to this ever present potential region of focal infection. This prudishness has cost many weeks of suffering and hundreds of dollars' worth of loss of productive time, to say nothing of thousands of dollars spent by insurance companies in compensation and medical fees.

Back strains that do not react to rest and guarded use within the time of formation of normal scar, i. e., two to four weeks, should be thoroughly investigated for focal infection. The lower the pain the more suspicious one should be of the pelvic viscera.

Most medical men are poorly equipped or poorly

trained in prostatic diagnosis. I am no exception to the general rule; my fingers are too short. A suspicious case should be sent to the well-trained, long-fingered man, and repeatedly examined, if necessary, to prove the case negative. This is very important. I have had a number of cases cleared up by insisting on this rule even though they brought histories of negative results of examination. I am convinced that more massage of the prostates and seminal vesicles and less heat and massage to backs will give us better results.

Pelvic visceral infections often refer pain to the groin as well as to the back. When a tender seminal vesicle is found with pain referred to the back on pressure you have probably located the cause for the backache, particularly if you find no tenderness at the point of referred back pain. Tender spots and subjective pain should coincide. No case of backache should be subjected to operative procedure so long as the pelvic viscera have not been proven negative or still contain pus.

I have had numerous cases of disabling, chronic backache that have promptly responded to proper stripping and draining of the seminal vesicles and prostate.

My experience brings me in hearty accord with Doctor Wesson's statements. I wish to congratulate him on his well-written warning to the medical profession and appeal for more careful investigation of the male infected pelvic viscera.

✽

F. S. DILLINGHAM, M.D. (320 Merchants National Bank Building, Los Angeles)—Doctor Wesson has again chosen a subject that should be of great value not only to those interested in industrial medicine, but to those interested in all branches of medicine. This paper is very thorough, and I agree with Doctor Wesson. He is to be complimented on choosing a subject which has received so little attention.

Prophylaxis is still the most important consideration in the handling of this subject; early and persistent treatment till a complete cure, and not for just the duration of the subjective or objective symptom. If everyone would follow such a course the backaches, arthritis and other complications would soon be history.

Doctor Wesson struck the keynote when he said "drainage." This can usually be accomplished by local measures; if not, operative procedures are more exact now than ever.

The posture while massaging the prostate and vesicles is very important; with the patient on his knees and one elbow, in a kneeling position on a table of the proper height, the free hand holding the specimen receptacle, the examiner's forefinger is on a line with his elbow and he can reach beyond the prostate and as high as possible on the vesicles. Regular massage should be kept up until the prostate and vesicles are free of all indurated spots, and the microscope shows the strippings free from pus. Long after cultures show the fresh strippings free of gonococci the prostate and vesicles may retain enough accompanying germs to cause all of the classical referred pains as described in the paper. Massage should be thorough but not too hard, as exacerbations and local inflammation, and epididymitis may be caused by roughness. Following a careful massage, if the patient voids and the urethra and bladder is filled with some of the newer non-irritating dyes, as described by Doctor Vecki, much time will be saved. Many mild chronic infections of the prostate and vesicles causing almost no subjective symptoms and accompanied by a moderate amount of pus in the urine will cause an albumin reaction, and with a dull ache in the back some have been told that they have kidney trouble.

The typical pains of sacroiliac slip would not confuse the picture for the urologist, but the milder cases may explain why a low backache keeps up after the prostate has responded to careful treatment.

The mental aspect is really serious and ranges from mild neurasthenia to suicide. Influenza has been a cause of infection, also the use of non-sterile instruments or the rough use of sterile instruments. Colon

bacillus infections frequently follow stasis in the intestinal tract, and it is usually a stubborn infection.

Doctor Wesson's paper should be brought to the attention of those doing periodic health examinations. A man under a five-year contract to take entire charge of a new oil field in South America, with a very heavy forfeit for failure to stay the full five years, was carefully examined and passed by the company staff of doctors, and just to be sure he was examined by his own New York doctors and passed. Just five days on the train and he came under my care with acute total retention. This is mentioned to bear out what Doctor Wesson has said as to the importance of examining the prostate and vesicles. By the way, it is surprising what little information is gained by the average doctor in examining a prostate. We have seen patients from which we could express 15 to 20 cc. of green pus called perfect.

Fresh strippings should be examined for living spermatozoa, as many apparently vigorous young men are found with all spermatozoa dead, but if the condition is recognized early enough they are cured if treatment is carried out faithfully.

To sum up, prophylaxis, early persistent treatment of the original infection, more routine examination of the prostate and vesicles, including microscopical examination of the strippings, treatment of the prostate and vesicles until all infection and induration are completely eradicated, and not only until the reflex symptoms are relieved.

✽

R. CAMPBELL BEGG, M.D. (Wellington, New Zealand)—I was very much interested in Doctor Wesson's statement that non-venereal prostatitis and seminal vesiculitis are as common as that of venereal origin. Tropical (non-venereal) prostatitis is very common in regions of excessive high temperature. In the Upper Euphrates Valley a temperature of 137 degrees is common, and a body temperature of 116 degrees is not unusual if the man lies on his back so as to diminish by that much surface his area for free perspiration. Consequently micturition consists of expelling residue composed of a few cubic centimeters of thick urine each day to keep down stone formation. If it were not for the routine note made in his diary one would forget that physiological function entirely. It is a land of bladder-stones and prostatitis.

✽

H. A. ROSENKRANZ, M.D. (1024 W. P. Story Building, Los Angeles)—The orthopedist has for years painstakingly examined the prostate and vesicles in arthritic and focal cases, but the general practitioner has overlooked a great many of them. About ten years ago I chided a colleague for not having examined the prostate. He replied: "What? I never put my finger in the rectum." Doctor Wesson's very lucid and convincing paper has been opportune in emphasizing this routinely valuable diagnostic point. The author states that there are again as many male as there are female back cases. This statement will be greeted as timely by those who have objected to Dr. Oliver Wendell Holmes' definition of the female: "A bipped with a pain in the back."

Someone has mentioned syphilis of the spine. With the rather high incidence of syphilis it is rather probable that we have been overlooking some Charcot backs and that they are not so extremely rare as we have believed.

I have encountered a number of backaches that yielded readily and solely to prostatic massage, and yet the prostatic secretion presented merely the occasional normal pus cell and no bacteria. Some of these backs become quite stiff if the massage intervals were too long deferred. What causes these backaches? Is it the reflex from an engorged congested organ or is it the absorption and local effect upon the back tissue of a perverted prostatic-vesicular hormone, the disfunction having been inaugurated perhaps by a previous gonorrhea?

I am glad that Doctor Wesson has emphasized the established fact that an infection or rheumatism in a part that has been injured does not result directly from the injury but results from an already existing

infection or toxin in the patient's body, an infection that is ever lurking to attack any place where resistance is lowered, as by an injury.

Treatment—Experience has convinced me that diathermy and the hollow quartz ultraviolet ray applicator are useful adjuvants in these cases. The most direct treatment is, however, the removal of the cause, and aside from the measures mentioned by Doctor Wesson I would emphasize the oft-startlingly good results that are obtained by washing out the vesicles by vasopuncture. Some time ago at the Los Angeles General Hospital I demonstrated two arthritic cases who entered the hospital in a crippled bed-ridden condition that showed immediate and very marked improvement directly after vasopuncture, and were discharged several weeks later in a thoroughly ambulatory condition with joints well loosened up. These were cases of gonorrheal rheumatism of quite long standing.

Physicians and their patients sometimes wonder why their cases do not respond more rapidly after the removal of the primary focus. They must bear in mind that a chronic knee having persisted for a long time has in itself become primary focus number two and must be treated accordingly.

✱

ROBERT V. DAY, M. D. (704 Detwiler Building, Los Angeles)—This paper is timely and I agree with it throughout. I want to emphasize that it is not the infection in the prostate that gives rise to metastatic infection elsewhere, but that metastatic infection arises from the concomitant infection in the seminal vesicles. There has been a superabundance of false teaching to the effect that the prostate is the guilty focus of infection. However, infection in the prostate is so often an index to infection in the seminal vesicle that it is frequently a good guide. Too often no attempt is made to distinguish between infection in the prostate and in the seminal vesicles, and the innocent prostate is given the credit for the sins of the guilty seminal vesicles. The diagnosis of vesiculitis is frequently difficult because of the mixing of the contents of the seminal vesicles with the prostatic fluid; however, if clumps of pus are found imbedded between strands of mucus containing spermatozoa it is proof positive of the presence of a focus of infection in the seminal vesicles. In the presence of an undrained focus of infection in the seminal vesicles orthopedic operative procedures for the relief of low backache are never justified.

ARTHRITIC JOINT PAINS AND GOUT*

By J. EDWARD HARBINSON, M. D.
Woodland

DISCUSSION by Philip King Brown, M. D., San Francisco; Ernest H. Falconer, M. D., San Francisco.

ALTHOUGH known since antiquity, gout, or uric acid diathesis, as some prefer to call it, still remains an interesting problem. Whether it is a rare or a common disease in this country is a mooted question. According to statistical reports its incidence in the wards of Cook County Hospital, Chicago, is .39 per cent. This is a little higher than at St. Bartholomew's, London, the home of gout, where the percentage is .37. At the Peter Bent Brigham the percentage of gout to total admissions is .22; lower than at Johns Hopkins, which has a percentage of .29. Between 1821-1916 the Massachusetts General Hospital shows the very low percentage of .03. What are we to conclude from these figures? They may mean either an increased incidence of gout in certain portions of the United States, or that among

the many cases of arthritis a few cases of gout escape early recognition. This latter supposition is the basis for this paper, that is, if gout is not considered in the differential diagnosis of patients complaining of arthritic symptoms, it seems very probable that some early or even advanced cases may not be diagnosed.

In considering this problem let us take for example the patient who comes for relief of arthritic pains. Predominant in mind when considering the etiology is the possibility of foci of infection. Roentgenograms are made of suspicious teeth; tonsils are rigidly examined for evidence of infection or the patient is sent to a throat specialist for an opinion. If one or more possible foci are discovered it is a question which is the principal offender. If we explain the patient's symptoms on the basis of foci of infection he usually inquires as to how much benefit he will receive from their removal, especially if it has been determined that one of the foci requires a laparotomy for its eradication. In every patient of this type it is of great importance that we exclude the possibility of gout before rendering an opinion.

TOPHI PATHOGNOMONIC OF GOUT

The classical description by Sydenham of the symptomatology of this disease has not been improved to date. It is well known to all of you, and I shall not burden you with its repetition. Even more important than the history is a careful search for tophi, and no physical examination is complete unless their presence or absence is noted. They are usually found on the margin of the ear or on the antihelix or pinna. The fingers, toes, and elbows are other sites of predilection. All parts of the body should be examined for them. Unusual locations are the edge of the eyelid, thyroid cartilage, vocal cords, and corpus cavernosum. The frequency with which bursae become inflamed in gout is not generally recognized, and perhaps only after incision and the finding of chalky sodium biurate material instead of pus is the real cause of the condition discovered. The skin overlying tophi is generally yellow, white or opaque. Over a newly formed tophus it may be natural or red. Sebaceous cysts, milia, and small projections of cartilage may be mistaken for tophi. The diagnosis of a tophus should not be made without removing some of the contents of the nodule and demonstrating with the microscope the presence of the needle-shaped crystals of sodium biurate. According to majority opinion the presence of tophi is pathognomic of gout.

AIDS IN DIAGNOSIS

In all cases of arthritic joint pain in which the etiology is not clear a blood uric acid test is essential. At the Woodland Clinic the question of gouty diathesis is considered of such importance that a blood uric acid is done as routine on all patients suffering from arthritic joint pain in which the etiology is not easily established.

At times a high blood uric acid may be found in a patient who shows no tophi after careful

* From the Department of Medicine, Woodland Clinic. Read before the Nevada State Medical Association, Reno, September 24-25, 1926.

examination, thus giving us a laboratory aid of considerable importance in diagnosis. This should be carefully borne in mind by the physician who may not have access to a laboratory and is forced, therefore, to reach a conclusion without this valuable diagnostic aid. Uric acid in the blood of normal individuals, taken after a fast overnight, varies from 1 to 3 milligrams per hundred cubic centimeters. Values up to 6 milligrams may occasionally be found in apparently normal individuals. In patients suffering from gout the blood uric acid may vary from 5 to 12 milligrams per hundred cubic centimeters of blood, or even higher. Pratt and McClure believe that the presence of more than 3 milligrams of uric acid per hundred cubic centimeters of blood should arouse a suspicion of gout. Black makes a positive diagnosis of gout even in the absence of proved sodium biurate crystals in patients who have had attacks of acute arthritis and whose blood uric acid is above 5 milligrams per hundred cubic centimeters. In interpreting the significance of a high blood uric acid we must remember such conditions as leukemia, polycythemia, interstitial nephritis, febrile conditions and others as a possible cause.

Though investigators are not agreed as to its value, the roentgenogram may be still another aid in differential diagnosis. According to McClure and McCarty the characteristic so-called gouty changes are represented by discrete circular or oval areas of decreased density, that is, areas of rarefaction. These areas form segments of a circle when they occur in the edges of the bones, their borders being more or less distinct and often very sharply defined. The areas of decreased density which radiologists believe are caused by tophi are, according to these authors, very often merely focal areas of absorption of lime salts and may be found in from 10 to 12 per cent of the non-gouty arthritides and therefore are not diagnostic of gout. They, like Strangeways, are conservative in evaluating the importance of the roentgenogram as a reliable aid in differential diagnosis. Phillips and his collaborators think that a good x-ray film is of infinite value as a diagnostic aid, especially in patients who give no history of attacks. In their series of one hundred cases diagnosed roentgenologically as gout, seventy-five were not suspected clinically and thirty were discovered in the examination of films taken on account of injuries or other conditions not related to gout. They point out that early gout cannot be differentiated roentgenologically from hypertrophic arthritis, but conclude that hyperuricemia, in the absence of clinical symptoms but with positive radiological findings, indicates the presence of active gout and also that the x-ray diagnosis can be substantiated in most cases by a high uric acid determination. It is probably too early as yet to draw any definite conclusions regarding the value of x-ray in the differential diagnosis between gout and arthritis. However, it is important that careful search be made in every roentgenogram for the supposed characteristic

punched-out areas, especially when the blood uric acid is higher than normal.

CAUSES OF GOUT

The cause of gout has been a debatable question since time immemorial. Some of the most important hypotheses are:

1. That uric acid is merely incidental.
2. That gout is a form of nephritis.
3. That it is due to an excessive production of uric acid.
4. That it is due to diminished destruction of uric acid.

Many arguments may be given in favor of each of these theories, but no one of them satisfactorily explains the problem. Interesting is the fact that the intravenous injections of uric acid will not produce an acute attack of gout. On the contrary, Bergland has found that during an acute attack some patients state that they feel somewhat better after the intravenous administration of uric acid despite the fact that the uric acid content in the joint fluid may be increased.

In prescribing the régime for gouty patients the most important factor is the diet. This should be purin-free, with abstinence from all alcoholic beverages. Bergland has found that patients on a purin-free diet, high in protein, show a lower level of circulating uric acid than on a purin-free low protein diet. The difference, he states, may be as much as 2 milligrams per hundred cubic centimeters of plasma. He calls attention to the fact that the blood urea and non-protein nitrogen should be checked at intervals when a high protein diet is prescribed for elderly individuals who may have some impairment of their kidneys.

As in times past colchicum still remains the drug par excellence for the relief of the acute symptoms of gout. Cinchophen or proprietary preparations of the same substance may be of decided value in relieving the pain in some patients. In interpreting our results from the administration of such medicines as cinchophen we must remember that normal individuals excrete an extra amount of uric acid when these drugs are administered and that they may have just as favorable an effect in relieving the pain of an acutely inflamed rheumatic joint as they do that of a joint affected by gout.

Many methods of treatment such as those given at various spas—physiotherapy, including electrotherapy, etc.—have been advocated during the past hundred years, but at best they are only palliative. Patients who adhere strictly to the prescribed diet often are free from symptoms for long periods of time. Whether it is the diet or periods of remission we are unable to say. Gout still remains an interesting diagnostic and therapeutic problem.

CONCLUSIONS

1. Gout should be considered as a possible diagnosis in every patient complaining of arthritic joint pain.
2. In every physical examination a careful search should be made for tophi.
3. A blood uric acid is very valuable in differential diagnosis, and a determination should be

made in all cases of arthritic joint pain of questionable etiology.

4. A roentgenogram may be of some value in differential diagnosis.

DISCUSSION

PHILIP KING BROWN, M.D. (909 Hyde Street, San Francisco)—The conditions under which uric acid is increased in the blood do not always indicate gout or a gouty diathesis, nor do we know what regulates the excretion of uric acid. We can influence it with cinchophen, but the mechanism by which nature varies it is one of the unsolved problems. Nor is it always increased in the height of acute attacks.

I have been interested in gout in relation to trauma and to infection. A patient with typical left big-toe gout hobbling across the street had his right toes run over by a Ford. No fracture occurred, but that night the toes of the right foot were all involved in a typical gout attack. A prominent surgeon with asthma, chronic bronchitis, and nephritis got a fresh cold and a bronchopneumonia. While in bed on light diet he developed a typical podagra attack.

Heavy wines and heredity have been held as responsible for most cases, but thirty-three years of hospital service has convinced me that alcohol plays an insignificant rôle, for gout is a very rare disease.

It is interesting to find the statement in Barker and Cole's handbook for the laity on rheumatism that "the cause of gout is definitely recognized and it is known to have nothing directly to do with infection of any kind or in any part of the body."

While gout may be purely a condition which arises from faulty metabolism, the fact remains that, like rheumatism, it attacks joints most likely to be subject to trauma and infection and, like rheumatism, it appears when the physical defenses of the individual are low, particularly from chronic infections.

In spite of the rarity of the typical disorder with the senicircular punched-out areas of bone showing in x-rays outside the actual articular surfaces, Doctor Harbinson is right that chronic and even acute joint disorders particularly involving the toes, ankles, knees, and fingers, need a trial of colchicum before a diagnosis is possible if the use of salicylates is a failure.

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ERNEST H. FALCONER, M.D. (384 Post Street, San Francisco)—Doctor Harbinson calls attention in his paper to the fact—mentioned by Thomas Futcher and other American writers—that gout is more prevalent in this country than generally supposed. Futcher writes: "If physicians will recognize the fact that there is probably no such affection as chronic rheumatism, and that the vast majority of cases of chronic arthritis are either gout, arthritis deformans, or some form of infectious arthritis, it will be found that, with due regard to the points in the differential diagnosis, a great many more cases will be justly attributed to gout than has been the case in the past."

In connection with the etiology of gout, it is interesting historically to note that a writer by the name of Falconer, in 1772, called attention to the association of lead poisoning and gout. Also the great clinician Sydenham wrote: "Great eaters are liable to gout, and of these the costive more especially. Eating as they used to eat, when in full exercise, their digestion is naturally impaired. Even in these cases simple gluttony and free use of food, although common incentives, by no means so frequently pave the way for gout as reckless and inordinate drinking."

A careful history may be of much help in cases suspected of gout, especially an inquiry into habits, hereditary predisposition, and the question of lead exposure. Garrod found that 33 per cent of the gout patients that came under his care in hospital practice had at some time in their lives suffered from lead poisoning.

Blood chemistry and roentgenograms are of help in the diagnosis, but as Doctor Harbinson indicates they are not procedures essentially diagnostic of gout.

The purpose of this paper, I take it, is to awaken our interest and keep before us the possibility of gout as a cause of the arthritic joint pains in some of this large group of patients who are constantly seeking medical advice.

POLIOMYELITIS CONTROL*

By GEORGE E. EBRIGHT, M.D.
San Francisco

THE problem of the control of poliomyelitis is difficult because important factors concerned in its dissemination are not yet clearly known, especially those referable to the recognition of human carriers of the disease.

HISTORY

It is in order first to review the history of the disease as it has come to be known and then to consider methods for its prevention.

J. K. Mitchell described an Egyptian mummy, which was supposed to show changes due to poliomyelitis.

In 1784 Michael Underwood of London described a "debility of the lower extremities," which is apparently the first description of the disease in medical literature. In speaking of its tendency to attack children previously reduced by fever, he may have observed but did not recognize the first hump of the dromedary type of the malady.

In 1835 John Badham of England reported "Four Remarkable Cases of Suddenly Induced Paralysis of the Extremities, Occurring in Children, Without Any Apparent Cerebral or Cerebrospinal Lesion."

In 1840 appeared the classical monograph of Jacob Heine. Twenty years later he published a second edition of his work under the name of "Infantile Spinal Paralysis." This twenty-year lapse of time marked the period of investigation of the clinical history of the disease.

From 1863 up to 1887 was the period of study of its pathological anatomy. Medin's article in 1887 placed the disease in the class of those which occur in epidemics and introduced the most recent era of the understanding of the disease.

RECENT INVESTIGATIONS

In 1905 came Ivan Wickman's monograph as a result of the Norwegian epidemic of that year and a description of abortive or non-paralytic cases.

In 1909 the disease was first produced in monkeys by Landsteiner and Popper, then by Flexner and Lewis and by Strauss. And it was transmitted from one monkey to another by three different observers working independently in New York, Vienna, and Paris. Also in 1909 Flexner and Lewis and Landsteiner and Levaditi discovered the fact that the disease was due to a filtrable virus, and the two former workers demonstrated that an attack of experimental poliomyelitis protected the individual against a second attack. Then immunizing substances were found in the

* Editor's Note—This paper by the president of the California State Board of Health is of timely interest because of the prevalence of poliomyelitis.

blood serum of monkeys that had had the disease, and immunizing substances were demonstrated in the blood of human patients convalescent from the disease. The serum of a patient who had been paralyzed thirty years before was able to protect a monkey from poliomyelitis. Three strains of the virus have been described by Flexner and Amoss. One of inherent low potency which does not excite any reaction in monkeys. Another which produces severe paralytic effects in monkeys and, thirdly, a strain of intermediate severity obtained, however, from an unusually severe clinical case. They know of no means by which a strain active for monkeys can be attenuated artificially. It retains a high virulence. A strain of low virulence may, however, be stepped up in monkeys. The same workers observed a certain strain for a long time and found that it varied up and down in potency, and in fifteen years passed through three distinct phases of virulence.

In persons dead of poliomyelitis the virus has been found in the central nervous system, the intestines, trachea, nose, and mouth. In living patients with the disease the virus is present in the nose and mouth, pharynx, and intestines. The secretion from the mouth and intestines of persons who have had the disease has had the power of infecting monkeys several months later—in one case nearly seven months—usually at least for thirty days, but it begins to lose its virulence rather quickly after the acute stage—after about eight to fourteen days.

The virus has been demonstrated repeatedly in persons who were perfectly well but who had been in contact with those with the disease. Anderson and Frost recovered immune bodies in the blood of 66 per cent of persons who had been in close contact with cases of the disease and who had not contracted it. Swedish observers believe that most adults have had the disease and are therefore immune.

SYMPTOMS

It has been estimated that there are from five to seven abortive cases for every paralytic one. Probably this is a low estimate, and it undoubtedly varies with epidemics. Abortive cases predominated in the early part of the Minnesota epidemic of 1921. An excerpt from the Minnesota State Board of Health Biennial Reports for 1920-21 reads as follows: "Attention of the State Board of Health was called to an outbreak . . . which at first was thought to be cerebrospinal meningitis. In general the onset was abrupt with temperature of 103-5, rapid pulse, headache, vertigo, pain in legs, and frequently stiff neck, ranging from slight stiffness to retraction. In some cases the head was retracted, the thighs, legs, forearms, and fingers flexed. Vomiting and constipation were present in the majority of cases. Epistaxis was frequent and often the first pronounced symptom. Sore throat was frequent and both drowsiness and restlessness were common. Of the early cases Kernig's sign was said to be present in all, and Brudzinski's sign in all severe

cases; knee reflexes were increased, decreased, or normal.

The early cases presenting meningeal symptoms without paralysis as a rule did not appear to be so seriously sick as the usual epidemic meningitis cases, and most cases recovered rapidly after but four or five days' illness. Multiple cases in the same family occurred and in many instances several persons in a family had, one after the other, a transient illness of but a day or two in which the onset was abrupt, with or without sore throat, and with general symptoms as above described, but without meningeal symptoms other than a stiff neck, while but one or two serious cases with marked meningeal symptoms occurred.

Later early cases which were thought to have no muscular impairment were carefully studied, and approximately 50 per cent of these cases showed lowered or absent reflexes in one or more members, loss of muscle tone, and in a few instances actual muscular atrophy."

It has been shown that the nasal secretions contain a specific protective substance active upon the virus. It appears to be constant in adults and is also present in children, though more irregularly than in adults. Nasal washings of healthy adults in general neutralize the virus. This same substance has also been found in the blood.

SPREAD OF THE DISEASE

Transmission of the Disease—It is the consensus of opinion that poliomyelitis is transmitted chiefly by means of direct contact with persons who harbor the virus in the nose or mouth—either contact with persons suffering from the disease, or who have had the disease, or who are carriers *who may never have had the disease*.

Rats and stable flies have been suspected of being possible intermediate hosts, but there appears now to be no doubt that the chief factor is contact with a patient or a human carrier.

Infection may take place through the mouth, nose, by means of the conjunctiva and tear duct, and the stomach—the latter infrequently.

Diagnosis—Epidemic meningitis, botulism, epidemic encephalitis, veronal poisoning and cerebrospinal syphilis may present a striking resemblance to poliomyelitis. In the presence of an epidemic of poliomyelitis a diagnosis of botulism in a suspected case would seem unsafe unless confirmed by laboratory findings. In recent epidemics extensive recourse has been made to examination of the spinal fluid as a means of differentiation from meningitis and lethargic encephalitis. Regan places especial stress upon the colloidal gold reaction which he finds constantly in the syphilitic zone. The cell count is always high and sugar is increased, according to New York reports.

PREVENTIVE MEASURES

Prevention—Bedside Precautions—Patients should be insulated in the acute stages of the disease in much the same way that typhoid patients are. They should be protected against visitors and against insects as possible accidental carriers. The

body discharges should be disinfected. Separate dishes and silver should be provided which are to be scalded after use. Attendants should be careful of their hands after contact with patient. Carbolic acid is useless.

Nose and throat sprays of antiseptic solutions are useless, and will not prevent infection. They do harm in removing a natural protective substance in the nasal secretion which neutralizes the virus of the disease.

General Public Measures of Prevention—Infantile paralysis is one of the few infectious diseases in which the mode of transmission is still unknown. Consequently we are not able to take effective measures against its spread. There is no evidence that regulations against the congregation of persons have had any influence in controlling infantile paralysis. This would be expected when the relative infrequency of secondary cases in families is considered.—Department of Public Health of Massachusetts.

There has appeared thus far no advantage in closing schools unless possibly in the spring or early summer in the presence of a rising epidemic.

The report of the Committee on Poliomyelitis of the Washington Conference of State and Provincial Boards of Health contained the following recommendations:

First: That an isolation period for a patient of not less than two weeks nor more than three weeks from onset be required unless the temperature has not returned to normal in the meantime.

Second: That children of the same household in contact with a patient be restricted from places of public assembly for a period of fourteen days from last date of contact, as determined by the health officer.

Third: That an adult of the household, if the patient is properly isolated, may continue his vocation, provided it does not bring him into contact with children at any time.

Disinfection—Your committee recommends that: first, the discharge from the nose, throat and bowels of the patient be disinfected promptly; second, the caretaker shall wash her hands with soap and hot water promptly after handling said discharges; third, the caretaker shall wash her hands similarly before leaving the room occupied by the patient; fourth, isolation shall be terminated by a thorough washing of entire body and hair of the patient, and the room cleaned with soap and hot water, aired and sunned; fifth, sick-room precautions should include the usual attention to cleaning and disinfection of eating utensils, personal and bed clothing, rugs, door-knobs, and other things handled by the patient or caretaker.

Precautions for Physicians and Nurses—The committee recommends that unless a special covering and gloves be worn (a) the physician and nurse shall so handle the patient that discharges shall not soil their clothing and special care be taken to prevent droplet infection; (b) the phy-

sician and nurse shall thoroughly wash their hands before leaving the premises.

Hospitalization—The committee approves the removal to hospitals of patients affected with poliomyelitis when proper isolation and satisfactory care for the patient cannot be secured in the home; but the committee believes that during the early stage of the disease the patient needs rest in bed, and transfer to a hospital may be detrimental to his welfare.

Other Suggested Measures Designed to Control the Disease—(a) The committee does not recommend the use of travel certificates, but travel and contact with children should be discouraged.

(b) Surveillance for persons coming from infected districts, in the opinion of your committee is not necessary, unless the person has been definitely exposed to infection.

(c) The most effective agency in the control of this disease is the employment of public health nurses, who, in cooperation with the physician, will teach sick-room precautions, the necessity for rest in bed, and the need of proper support for affected parts.

(d) Expert diagnosticians should be provided and the use of lumbar puncture urged.

(e) Food, especially such as is consumed uncooked, should be considered as a possible means of transferring the infectious agent and appropriate measures should be instituted to protect the public during an outbreak.

(f) Where poliomyelitis occurs in a school, your committee advises that the school be not closed, but that daily medical supervision be instituted.

(g) Efficient screening and the use of approved insecticides should be employed so that insects shall not have access to the patient or his excretions.

(h) Household pets should be excluded from the sick room.

(i) In the presence of poliomyelitis a search for, and a careful examination of, all ill children should be made. All children having fever should be isolated pending the diagnosis.

(j) Prompt reporting of all recognized or suspected cases, personally or by telegraph, or by telephone, is essential, in addition to the written report required by law.

Future research, it is to be hoped, will reveal a practical test for the detection of clinical types and carriers, a test for immunity and a means of conferring artificial immunity against poliomyelitis.

384 Post Street.

Quackery Advertisements—It is reported that the two leading newspapers in Minneapolis do not accept advertisements of quacks. This is practically true also of the *New York Times*. It is regrettable that the large daily papers in Massachusetts cannot feel that advertisements setting forth unsound claims are not worthy of a place in their columns.

We confidently believe that there will be a time when the advertisements of quacks will be prevented by legal enactment.—*Boston M. and S. J.*

TUBERCULOSIS: SOME PHASES OF TREATMENT

By JOSEPH W. COOK, M. D.
Banning

DISCUSSION by Lewis Sayre Mace, M. D., San Francisco; Francis M. Pottenger, M. D., Monrovia; George H. Evans, M. D., San Francisco.

IN considering the modern treatment of tuberculosis it is wise to recall what tuberculosis is. Tuberculosis is named after the product of the disease—the tubercle. The disease is the final product of a relationship in which “two variable adaptable organisms are concerned: the animal body (the host), and the bacillus (the parasite), each of which may act within an entire gamut of states, thus yielding a large number of results.” Add to this complex situation, Theobald Smith says, the variable dosage of the tubercle bacillus, and one can understand the innumerable varieties of its manifestation; a variety of types of tuberculosis, or degrees of tuberculosis, limited only by the number of hosts harboring within their bodies the parasite or tubercle bacillus.

INDIVIDUALIZATION IN TREATMENT

One is faced, therefore, with the absolute necessity of individualization in treatment, based on a study of the individual primarily, and his disease or the result of the interaction of the host and parasite secondarily, only as it may affect the particular individual. A small area of tuberculosis the size of a quarter may well kill one patient, while another patient may have both lungs affected and not be particularly annoyed thereby. Personal reaction has more to do with health and life than we know. Personality, mental status and attitude may even determine the result of a conflict between the body and the parasites living within the body.

As Brewer has well said, “we spend our lives peering closely at the body of the patient and allow his personality to slip away from us, and then we look up and find that the body is gone too.” Modern psychology is more and more showing us that our bodies are more than wonderful mechanisms and that there is a something back of it all which subconsciously controls our bodies, and we are gradually awakening to the truth of the old but ever new statement of One who said, “As a man thinketh in his heart so is he.”

Inasmuch as there are two factors concerned in the cause and progress of tuberculosis, we have two avenues of attack or approach in the treatment of it. Our attack on the parasite has not met with success. At the recent meeting of the National Tuberculosis Association the following resolutions were passed:

NO SPECIFIC PREVENTION OR CURE

1. There is no specific cure for tuberculosis like antitoxin for diphtheria.
2. There is no specific preventive for tuberculosis like vaccination for smallpox.

Calmette in his recent book says: “It seems evident then that all sera of animals prepared

either with tuberculin or with bacilli are devoid of any efficiency, as well for tuberculous patients as for experimental tuberculosis.” In considering the use of chemicals and rare earths in the treatment of tuberculosis he adds: “It is vain to hope to convey by the blood, lymph, or air any of these substances which do not possess a specific chemical affinity either for the bacillus or the tuberculous cell, to the lesion itself. We fail to recognize the essential fact that the tuberculous cell, which is no longer a normal cell but a new complex formed through the symbiosis of tubercle bacilli with the elements constituting the giant cell (just as the lichen is the product of the symbiosis of an alga and a fungus), lives, in a sense, independently of the body which it serves as host. It is no longer linked up with the latter by any capillary vessels. It isolates itself more and more in proportion to the degree of caseation and calcification which it undergoes. It is still possible that certain chemical bodies may have an indirect action upon tubercles by favoring the transformation into fibrous tissue of healthy cells about the tubercles.”

“It must be recognized,” he continues, “that up to the present, despite the great number of attempts to discover among chemical agents a substance capable of arresting the development of experimental tuberculosis in the guinea-pig and the rabbit, these efforts have been in vain. But this is not a reason for discouragement. Certain attempts among those which we have cited deserve further attention. It will be desirable, for example, to give further consideration to those iodized compounds which, if they do not appear full of promise, give, nevertheless, some definitely favorable results.”

THE STUDY OF THE PATIENT

Our only other approach to this problem is a study of the host or patient, and the greatest success of modern medicine has been shown in what has been accomplished from this point of view.

The third resolution passed by the National Tuberculosis Association states that among the important factors in the cure of active tuberculosis are:

1. Competent medical supervision. Prolonged medical treatment, I may add, is not necessary, but prolonged observation is absolutely necessary.
2. Complete rest under favorable conditions.
3. Carefully balanced and adequate nourishment suited to the individual.
4. Abundance of open air and, if possible, sunshine.
5. Relief from other infections, or other physical or mental strains and handicaps.

You will notice that we are face to face with the problem of building up our patient's own powers of resistance to overcome the temporary failure in immunization which was the immediate cause of the outbreak of the active tuberculosis.

Rest—absolute rest—is the one greatest means at our disposal. Patients should be taught to lie on the affected side. Rest prevents tuberculosis

from spreading. Bushnell frequently told his patients that if he could be sure that the focus would not spread he would let them keep on at their work, but that rest alone would prevent the spread of the disease. Another object of rest is to dry up the focus. "Tuberculosis heals," as Alexander says, "by fibrous encapsulation. In bringing this about, individual resistance to the disease is the most important factor. Rest is the keystone of successful treatment of tuberculosis."

Fresh air—and lots of it—and sunshine are too obviously necessary to need more than passing mention. Heliotherapy is most valuable, but like all powerful stimulants, must be carefully administered and graded to the individual. In heliotherapy Rollier's methods are closely followed. The chest should never be exposed. Sun should not be used when there is much fever or hemorrhage. Air baths are very useful.

Good food is essential, but, as Bushnell says, "most of the miseries of the tuberculous patient are due to overeating or to an improperly selected diet—too much fat especially. A fatty breakfast is particularly bad for the inactive consumptive. Nothing that is bad for the health is good for tuberculosis in the long run, and this applies to food as a fundamental and universally applicable proposition."

Relief from other infections as urged by the National Tuberculosis Association, I presume, means ridding the host of other foci of infection, but may I plead with my colleagues, the surgeons, for more consideration of the patient in this respect? When throats are treated for months and the chest never examined, when tonsils are removed from a glistening edematous throat and the chest never examined, when suspected appendices and ulcers are operated on in failing health and the chests never examined, when teeth are removed almost indiscriminately and the chest never examined—then I think it is time to make a plea for more study and more care to prevent every needless operation on patients with tuberculosis. My own experience has convinced me that removal of tonsils in a patient with an early case of active tuberculosis is a most dangerous proceeding, and is attended by an increase and spread of the activity of the process.

In its appeal for relief from other physical or mental strains or handicaps, I feel that the National Tuberculosis Association is voicing the sentiments of the leaders of our profession—that our greatest hope lies in the elimination from our patients of all physical or mental strains and handicaps in order to raise their resistance so that the body itself can overcome its resident parasite either by total obliteration, or by walling it off by fibrous tissue, or perhaps by caseation and evacuation of cavities, throwing off sufficient infected material that the body can again regain the upper hand. "Our object of treatment, then," as Bushnell says, "is to help the patient to cure himself." "There is no disease," according to Knopf, "which has so large a social and psychological aspect as tuberculosis, and the physician

who wishes to be a specialist in this line and who neglects to study the social aspects of the disease and the soul life of the tuberculous patient will never become the ideal physician."

As a patient of mine wrote, "To be thrust from a life of successful business or other activities into the discipline and rest of a tuberculosis sanatorium is a contrast that certainly needs to be considered in the treatment of tuberculosis. Many patients complain bitterly that 'taking the cure' is more severe than the disease. The self-discipline required at this point, the need to be complacent and free from worry over blasted hopes and plans, demands much effort and should be sympathetically considered in any course of treatment. Patients with chronic sickness," he continues, "most certainly require strictly professional service, but they also are in need of that human touch or indescribable something that has a definite therapeutic value." In other words, if there is a psychology or philosophy by which we can help our patients to find themselves and thereby get their balance and raise their resistance and thus assure their immunization, let us acquaint ourselves with it and pass it on to our patients. "It is the spirit that quickeneth, the flesh profiteth nothing."

TREATMENT OF SPECIFIC SYMPTOMS

Having considered the parasite and the host, and having endeavored to establish the idea that the host is more than a mechanism, I wish to consider the result of the interaction of the parasite and the host, namely, the disease itself, and briefly consider the treatment of some of the most common symptoms of the disease.

For cough use as little opium as possible. Mustard plasters and inhalations and simple medicines to loosen the cough are valuable. We should teach the patient to control his cough, as much of it as is habit, and an unproductive cough can almost always be checked by the will. Intratracheal injection of oil—oil of acacia, menthol, and guaiacol—frequently is of great value, a few drops with laryngeal syringe dropped into the larynx. The use of creosote, in the great majority of patients, I believe contraindicated because of its effect on the stomach.

For pleurisy, heat, iodine, or strapping the chest are indicated. Ice sometimes, or liniments may be useful.

For bleeding, rest, absolute rest, ice to suck and ice bag to chest, calcium lactate by mouth—10 grains four times daily or a daily injection of a 10 per cent solution, 5 cc. of calcium chloride by vein—codein or morphin and atropin, codein by preference, only if necessary to obtain a quiet mental attitude. Luminal can frequently be used to advantage in place of opiates. Eighty years ago James Jackson wrote, "rest of body and mind, and holding the tongue, are quite as important at the moment of bleeding as the medicinal articles." It is surprising that recently absolute silence on the patient's part is again emphasized as most beneficial. Pneumothorax may have to be resorted to to control bleeding.

Natural pneumothorax, a more frequent acci-

dent than one would suppose, is best treated by rest, supportive measures, morphin for the shock, and withdrawal of air from the affected chest cavity. This can be done by any aspirating syringe, but preferably under control of a manometer and by a pneumothorax apparatus. A good caliber needle can be used alone if no syringe is handy. Frequent aspiration may be required.

I have found overeating a frequent cause of indigestion. For that, tincture belladonna, eight to ten drops before meals, various mixtures of pepsin and soda after meals—sometimes dilute hydrochloric acid with meals—are all useful.

For diarrhea—possibly tuberculous—a flannel band around abdomen, simple diet, calcium chloride, 10 per cent solution, 5 cc. by vein two or three times a week, or calcium lactate by mouth, paregoric as needed, and sun baths on abdomen are most valuable. In fermentative conditions restriction of starches and fruits, and occasionally even of milk, and the administration of calcium carbonate and tanalbin, 15 grains each four times daily.

When patients are failing in spite of all care, surgical compression of the lung remains to be considered. "Pulmonary compression constitutes," as Alexander says, "a 'physiologic amputation.' The most striking anatomical result of pulmonary compression is a proper proliferation of fibrous tissue which encapsulates the tuberculous lesions and closes cavities and renders the disease inactive."

Artificial pneumothorax, where it is possible, will frequently save life and thoracoplasty will frequently save patients in whom pneumothorax fails. Provided these surgical means of treatment are not resorted to because of a hopeless attitude toward tuberculosis in general, I am in sympathy with them. If Calmette's statement is correct, that one-sixth of the total volume of the lungs is sufficient to sustain life, are we not justified in changing our attitude somewhat toward our patients? Can we not stop thinking of our patients only in terms of lungs, cavities, râles, areas involved, and while recognizing our patients' dependence on their lung condition, ask not how good or how bad the lungs are, but will they do the work? Sir James Mackenzie's greatest contribution to the study of the heart was that he looked upon the heart in terms of work capacity and asked not how does the heart sound, but does it do the work, and thereby freed us from the dread and fear of heart murmurs. In other words, do not be frightened by a chest full of râles and bronchial or cavernous breathing, but take everything into consideration. The patient may have had tuberculosis for ten to twenty years. By the lowering of his resistance he may have decompensation. He should be kept in bed as long as he has a high temperature or rapid pulse, but it is not necessary to keep him in bed until his râles all clear up, as he may die of old age before that time. We should think of him as a patient with lost pulmonary compensation

and that our job is to get him back to the stage of proper compensation.

REHABILITATION THROUGH HOPE

"Idealism," said a patient, "is the only cure for tuberculosis." If we can awaken hope and idealism in a patient with even advanced tuberculosis, rehabilitation may be accomplished. We should never be hopelessly discouraged. If we are unable to make a perfect physical cure of our patient by wise guidance, we can teach him to rest and to care for himself that he may become at least an economic cure. Robert Louis Stevenson, Bushnell, Trudeau, and many others are examples of economic cures, and all help to prove that tuberculosis, if kept under intelligent control, is not incompatible with the living of a useful life.

DISCUSSION

LEWIS SAYRE MACE, M. D. (240 Stockton Street, San Francisco)—Doctor Cook has done well to call our attention to the necessity of individualization in the treatment of lung tuberculosis. Generalization is a great danger in the treatment of any illness and especially so in tuberculosis: a disease of many and various manifestations and always complicated in its social aspect by conditions of occupation and environment.

One remembers the advice of the elder Pepper in his practice of medicine that the tuberculous should ride horseback and drink whiskey, a fearful counsel it seems to us now with our modern ideas about rest régime and treatment although it may have been in its final result but little worse than the frequently heard direction, "Go to Arizona," so often given as a routine on receipt of a red line diagnosis from the Board of Health.

We are learning in all departments of medicine to study and observe our patients, which is a more artful calling than making diagnoses. We are learning to test impaired organs by seeing what they will do and to plan our campaign accordingly. Why except the lungs from this progressive attitude?

There is no "never" and no "always" in medicine and each question of prognosis and treatment must be decided on its merits and upon the evidence submitted. The man with a slight cough and positive sputum may not be condemned to sell all his goods and go to Arizona; there may be hope for him with the help of properly directed treatment supplemented by changes in his occupational conditions when he has arrived at arrest.



F. M. POTTENGER, M. D. (Pottenger Sanitarium, Monrovia)—Doctor Cook emphasizes rightly the different manner in which different patients react to tuberculosis. There is undoubtedly much in soil. Different degrees of severity of the diseases are due to difference in virulence of strains of bacilli; at the same time the difference in the patient's own reaction is probably the greater source of variation.

The main factor in the cure of tuberculosis is the cellular reaction. While undoubtedly certain circulating antibodies must be present, as otherwise we could not have the sensitization of body cells far distant from the focus of infection, yet the main factor in healing is the allergic inflammatory reaction of the tissues in and surrounding the tubercle.

The natural stimulus which causes the allergic reaction necessary to healing is some element supplied by an active focus. This allergic reaction is brought about when bacilli escape from a former focus, causing new implantations to take place. We sometimes see an extension in one lung produce an allergic reaction in tissues far distant in the same lung, or, even, in the other lung, or in different organs such as the testicle, larynx or glands. This allergic reaction can be brought about artificially by the injection of dead

bacilli or bacillary protein. Following an allergic reaction produced by an extension of the disease we often see very definite evidence of healing.

Doctor Cook well emphasizes the importance of rest in the cure of tuberculosis. There is no other measure so important in the healing of tuberculosis as rest. Exertion during the stage of active tuberculosis destroys more patients than any other thing. When the disease is active it not only keeps up the activity but causes the disease to spread further. One of the most important things in cure is to stop the spread of the infection, and rest will do more toward this than any other measure that we use.



GEORGE H. EVANS, M.D. (350 Post Street, San Francisco)—One must pass the very interesting problem brought up by Doctor Cook in the introduction of his paper, namely, the reaction of the patient to the tubercle bacillus, if the more practical part, "Some Phases of Treatment," is to be discussed in the space allotted.

There can be no doubt at present that the healing of a tuberculous process is brought about through cellular stimulation of the tissues about the diseased focus. On this basic theory all recent scientific endeavor toward the attainment of a specific therapy has been directed, but, as Doctor Cook has said, these efforts have to the present time been unsuccessful.

The author very properly calls attention then to the other approach, the study of the patient. I was gratified to see the reference to individualization in treatment, in the preface of his paper. Probably the greatest therapeutic crime in the annals of tuberculosis is the attempt to treat it en masse. As the patient's individual cellular reaction to the tubercle bacillus varies in each case, so must each patient be a distinct individual study to the one who exercises the competent medical supervision regarding which Doctor Cook speaks. It is surely so in pneumonia, in typhoid fever; should it be less so in tuberculosis?

"Complete rest under favorable conditions" is unquestionably the most important single remedial agent at our disposal and it is most comprehensive. I wonder if the average physician giving this direction realizes the importance here of individualization? If he thinks he can obtain it, I mean complete physical and mental rest, by merely telling the patient to take it, as so many physicians are doing, and neglecting the constant competent medical supervision, he is a poor psychotherapist and lacks sympathetic understanding of his patient's needs.

Focal rest of the diseased area by means of compression is now a thoroughly established procedure in the therapy of tuberculosis. Compression by air, or thoracoplasty in carefully selected cases where air compression cannot be attained because of pleural adhesions, in competent hands, has done much to bring hope to otherwise hopeless advanced cases.

Heliotherapy in pulmonary tuberculosis is still in the controversial stage. It is interesting to note the modified views of such leaders in heliotherapy as Rollier and LoGrasso, as experience in this field of therapy demonstrates the value of this remedy in pulmonary lesions. I have found that in the productive type of the disease, with little or no fever, that the careful application of heliotherapy can be rendered devoid of danger, and of marked benefit to the patient. How much of this apparent benefit is due to the air bath advocated by Doctor Cook is difficult to determine.

Much was contained in the paper regarding the treatment of symptoms. These patients are altogether too much the victims of polypharmacy as a rule. A more thorough search for the causes, underlying cough, diarrhea, and many of the complications to which these symptoms are due, would not only point out a clear path for accurate therapeutic endeavor, but would relieve the patient of much meddlesome drug-ging which he is so ill able to withstand.

GRANULOMA COCCIDIOIDES — APPARENTLY SUCCESSFULLY TREATED WITH COLLOIDAL COPPER*

REPORT OF TWO CASES

By H. P. JACOBSON, M.D.
Los Angeles

DISCUSSION by Anstruther Davidson, M.D., Los Angeles; Irwin C. Sutton, M.D., Hollywood; Kendal Frost, M.D., Los Angeles; Philip H. Pierson, M.D., San Francisco.

THE purpose of this communication is to record some observations on the efficacy of colloidal copper in the treatment of coccidioid granuloma. My reason for this report based upon the results of this method of treatment in only two cases is quite obvious. I believe that, in view of the rather limited number of cases of this disease that may come to anyone's attention in the course of practice, collective statistics of a trial of this method of treatment should prove quite valuable. It is hoped that through such collective study and compilation of results achieved we may be better able to obtain early, definite, and positive knowledge of the value or uselessness of this therapeutic agent.

DISEASE FREQUENTLY DIAGNOSED AS TUBERCULOSIS

The disease is either comparatively rare or is frequently permitted to run its fatal course, unrecognized, and diagnosed as tuberculosis. Thus far, since the first recorded case (Posodas) by Wernick¹ in 1892, a total of eighty-three cases of this infection have been reported in the literature. That this number falls far short of the actual incidence of the disease may be judged from the frequent references in the literature dealing with postmortem findings of coccidioides in cases which have been diagnosed antimortem as tuberculosis. That this disease may easily be diagnosed as tuberculosis is emphasized by Case 1. This patient's condition was diagnosed as tuberculosis in a well-known institution in Cleveland, Ohio, whereto he was admitted as a hospital patient for the purpose of having a "cold abscess" opened and drained. Incision and draining of this supposed tuberculous abscess there, resulted in prompt healing of the wound, but this fact was not sufficient to arouse the suspicion of the attending surgeons that they were dealing with a case of coccidioid granuloma. The following two case reports will serve to illustrate the points which I wish to emphasize:

CASE REPORTS

CASE I—M. C., negro, male, 22 years of age, presented himself for admission to the Los Angeles General Hospital, October 8, 1926, and left the hospital apparently well, January 13, 1927. At the time of admission he complained of fatigue, cough, night sweats, loss of weight, and several variously sized deep-seated abscesses and fistulae situated on the extremities and neck. His present illness commenced in the spring of 1925 while working in the cotton fields in Stock-

* From the Department of Dermatology, Los Angeles General Hospital.

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ton, California, with a small deep-seated nodule on the chin and a similar lesion on the right forearm, accompanied by a severe cold in the chest, and night sweats. Several weeks following the onset of that illness he left Stockton for Cleveland, Ohio, where his cough and night sweats somewhat subsided, while the soft lump on the right forearm continued to enlarge and to interfere with motion, causing him quite a degree of discomfort. In addition to this there also appeared a symmetrical nodular eruption on both sides of the neck and in the right mandibular region. Incapacitated by the large tumor mass on the right forearm, and concerned about his looks because of the lesions on the neck and jaw, he felt compelled to seek medical advice, which he obtained in the Lakeside Hospital of Cleveland, Ohio. After going through a routine preliminary clinical examination he was admitted to that institution with a diagnosis of a tuberculous abscess, which was incised and drained in March, 1926. Soon after the operation new abscesses began to appear on both thighs and right leg. At the same time he also began to develop severe constitutional symptoms, such as cough, loss of weight, fever, marked night sweats, and extreme weakness. Because of these constitutional symptoms, he remained at the hospital forty days. After a final examination by the attending physicians there he was advised, because of the supposed tuberculous nature of his condition, to return to California, where the balmy climate would hasten his recovery. He returned to Los Angeles in July, 1926, and after trying vainly to do some work by which to support himself he was compelled to give up the attempt and to seek relief at the Los Angeles General Hospital, where he was admitted October 8, 1926.

Physical examination at this time revealed a colored young man obviously uncomfortable and ill. On either side of the neck, about one and a half inches below the lobes of the ears, there were seen two fair-sized fistulae discharging seropurulent material, surrounded by dark-colored crusts closely adherent to the underlying skin. The walls of the fistulae were hypertrophic, indurated, and markedly elevated above the level of the surrounding skin. A smaller lesion about one and a half inches in length was present in the right mandibular region, immediately below the angle of the jaw. On the midposterior aspect of the right thigh there was a fluctuating tumor mass of the size of a large orange surrounded by an area of deep induration several inches in width which was only mildly tender to the touch, but caused the patient a good deal of discomfort and interfered with his movements. On the external malleolar region of the right ankle was a superficial, sluggish ulcer of irregular shape from which extended a small tortuous fistula into the subcutaneous tissue. On the dorsal surface of the left hand in the region of the ring finger there was present a soft, gummatous, painless swelling, in the center of which was an irregular ulcer of the size of a dime exuding a tenaceous, brownish yellow seropurulent material.

Laboratory Findings—Aspiration of the abscess on the midposterior aspect of the thigh drained about one pint of brownish yellow tenacious pus. Microscopic examination of the fresh pus revealed numerous refractile, double contoured spheres, which varied considerably in size and were largely composed of a coarsely granular protoplasm. A few isolated budding forms of these organisms were also observed in these smears.

Culture on glucose agar at room temperature showed a definite growth at forty-eight hours. After five days the whole surface of the medium became covered with a growth in the form of paraffin-like rounded plaques surrounded by fluffy, snow-like flakes, which continued to grow to larger dimensions and to penetrate the medium for several weeks after. Microscopic preparations from these cultures revealed an outgrowth of coarse, branching mycelium with here and there dilated or clubbed ends of some of the segments as well as occasional chlamydospores on some of the hyphae. Search for the organism in sev-

eral slides of tissue, both paraffin and frozen sections, failed to reveal the presence of the parasites there. The pathologic changes found were those of an inflammatory process of the corium and subcutis with secondary involvement of the epidermic layers. There was a generalized parenchymatous and interstitial edema of the tissues of the corium accompanied by a mild degree of granular degeneration, some evidence of new blood-vessel formation, and a diffuse cellular infiltration extending to and involving the subcutis. The cellular infiltrate was composed of round, epithelioid, and plasma cells, with here and there an occasional giant cell, with no evidence of definite tubercle formation. The epidermis was irregularly acanthotic and involved in a generalized edema, both parenchymatous and interstitial, with here and there some vesiculation, but no evidence of abscess formation.

Course and Treatment—During his first few days in the hospital he was kept under observation in the orthopedic service with a tentative diagnosis of tuberculosis. Soon after the diagnosis of coccidioides was established he was transferred to my service in the department of dermatology where active treatment was begun. This consisted of deep intramuscular injections of colloidal copper every four to five days plus the usual routine hospital care.

The large abscess on the thigh was incised and the cavity irrigated with one-half of 1 per cent solution of copper sulphate daily for several days. In all the patient received nineteen injections of colloidal copper between November 1, 1926, and January 29, 1927—almost two months. Immediately preceding the copper treatment the patient showed definite evidence of rapid decline, such as fever, rapid pulse, recurrent night sweats, cough, appearance of new lesions, and rapid emaciation. The first sign of improvement was noted November 18, when he informed the intern that he felt better. From then on there was steady improvement, the lesions gradually involuting and the cough and night sweats completely subsiding. In addition to these signs of improvement he began to gain weight and asked permission to return to work. His request was granted him by the intern without my knowledge on January 12, 1927, when apparently the disease process had been arrested and there had been a gain of seventeen pounds in weight. Unfortunately his departure somewhat hampered my further observation of his case, as in spite of my pleading with him to report at my office regularly for treatment he has not been seen or heard from since January 29, 1927, at which time a culture taken from a partly healed lesion on the neck failed to grow the organism of coccidioides. My attempt to trace him by mail has so far proved unsuccessful. What his present condition is I do not know, though I am reasonably certain that, in view of the help he received at our hands at the hospital, he would again seek our aid should his condition demand it.

CASE II—Male, age 28 years, negro, laborer, born in Georgia but lived in Birmingham, Alabama, up to two and one-half years ago, when he came to Los Angeles, where he has since lived continuously up to the onset of his present illness. He has never been to nor has he lived in the San Joaquin Valley.

His present illness commenced in December, 1926, with a severe cold which failed to respond to usual home remedies, but continued to trouble him until he was finally compelled to stop working and to seek medical relief. He was admitted to the Los Angeles General Hospital February 16, 1927, and was seen by me in the dermatologic service of the hospital February 18, 1927. Observation of the patient at that time revealed a colored man rather poorly nourished, apathetic and drowsy and seemingly quite ill. Questioning elicited the complaint of intense headache, severe cough with profuse expectoration, drenching night sweats, dimness of vision, precordial pain, swelling of the ankles, loss of weight, abdominal, cramp-like pain radiating to the back, and extreme weakness. Physical examination revealed very prominent eye-

balls, corneal opacities due to an old interstitial keratitis (probably specific in origin) and ptosis of the eyelids.

On examination of the chest there was a marked tachycardia associated with increased cardiac dullness. Physical and radiographic examination of the lungs disclosed a diffuse nodular involvement of both lungs, especially marked in the upper lobes.

Neurological findings consisted of exaggerated deep tendon reflexes and positive ankle clonus and a questionable Babinsky.

Examination of the skin disclosed the presence of numerous subcutaneous soft, slightly tender tumor masses and nodules involving the face, chest, abdomen, and extremities. These growths were of unequal size and of different stages of development. Some were no larger than small cherries situated deeply within the subcutaneous tissue and not adherent to the skin proper. Others were much larger and either in the process of ulceration or about to ulcerate on the surface of the skin. Aspiration of a nodule on the left side of the chest revealed in the pus therefrom the *Coccidioides immitis* in its typical form.

Course and Treatment—Active treatment with colloidal copper was commenced immediately after the clinical diagnosis of *Coccidioides* was confirmed by laboratory findings, February 18, 1927. The first sign of improvement, a diminution in the night sweats, was noted February 26, after the third injection. Thereafter there was a gradual improvement of his condition. The cough began to subside and the mucoid expectoration, which had up to that time amounted to between three to five paper sputum cups in twenty-four hours, steadily diminished until by March 25, 1927, there was complete subsidence of cough and expectoration. The intense, continuous headache which had kept him awake nightly subsided on the twelfth day after treatment was begun, and has not bothered him since. Unfortunately I am unable at this time to state whether this headache and the other meningo-neurological manifestations mentioned above are coccidioidal in origin or evidence of an hereditary syphilis with present involvement of the cerebrospinal system. The patient objected to a spinal puncture, and a serological examination of the blood revealed at one time a negative Wassermann, and the result of another test was questionable. Meanwhile, in addition to the subsidence of the aforementioned symptoms, the subcutaneous and cutaneous tumor masses and nodules are either in the process of involution or have involuted completely. The patient, at this writing, is gaining in weight and strength, and instead of being bedridden is up and about. What the future holds for him is, of course, premature for me to foretell, but judging by the rapid progress he has made as a result of this treatment I feel justified in hoping and believing that the disease process is arrested, and the chances for his recovery are pretty good.

COMMENT

Two features of these cases deserve special consideration which I shall try to discuss somewhat briefly. First is the question of diagnosis: It may not be amiss to question why there have been only eighty-odd cases of this disease recorded in the literature to date. It hardly seems probable that a parasite (*Coccidioides immitis*) which thrives so luxuriantly in animal tissues, and which apparently finds the human economy a most excellent environment for its nutrition and propagation, would willingly confine its activities in such large centers of population as Kansas, South Carolina, Illinois, Missouri, Texas, Louisiana, and Mexico, to one or two individuals without manifesting any further evidence of its existence there in the course of years.

That such is not the case and that coccidioidal granuloma is much more prevalent than would

appear from the limited number of cases reported may easily be judged from the frequent references in literature to the close similarity between this disease and tuberculosis, and to the great likelihood of their confusion. These references are especially frequent in the writings of Montgomery, Ryfkogel, Brown, Morris, Hirsch, Dickson, Cummins, Evans, Pruett, and others, which all emphasize the necessity of thinking of *Coccidioides* in every so-called case of tuberculosis that persistently yields negative bacteriological findings for the tubercle bacillus. Ophüls, in stressing this diagnostic difficulty, cites two cases of his own which were diagnosed as tuberculosis but later at autopsy proved to be *Coccidioides*. My own case which remained undiagnosed in a first-class hospital in Cleveland, Ohio, further illustrates the perfect mimicry of tuberculosis of which this disease is capable.

COCCIDIOIDES IS NOT AN EXCLUSIVE CALIFORNIA DISEASE

In view of these facts it seems quite timely and proper to again call attention to the likelihood of the existence of this infection on a much larger scale and in regions heretofore unsuspected. The *Coccidioides immitis*, like most other vegetable parasites, is just as capable of thriving in Massachusetts, for example, as in California. The name of "California Disease" as applied to this malady is a misnomer and is misleading: it certainly falls short of being descriptive of the habitat of the organism causing the disease, and should therefore be eliminated from our vocabulary as a synonym for granuloma *Coccidioides*.

RESULTS OF TREATMENT WITH COPPER SIGNIFICANT

The second and perhaps most important phase of this study concerns the treatment of this infection. Heretofore all conservative attempts at staving off the ravages of this disease have met with failure. There are a few isolated instances recorded where, in the early inception of the disease, when limited to an extremity, high and immediate amputation has served to prolong life. In one or two instances this process of amputation had to be repeated and extended to other members or extremities of the body. There is one report on record which claims some benefit from x-ray therapy. Another report claims benefit from extremely large doses of iodides. On the whole, however, opinion is quite pessimistic in regard to successful treatment, and all writers are agreed that nothing has as yet been discovered which offers even slight promise of constant success in the treatment of this disease.

In view of these discouraging experiences in the treatment of this fatal malady, the results achieved with colloidal copper in the two cases herein reported is rather significant. Both of these patients had extensive cutaneous and systemic involvement and, judging from the outcome of similar cases on record. The course of this disease should have continued downward at a rather rapid pace and should have ended fatally in a few weeks. Instead patient No. 1 left the hos-

pital apparently well to resume his daily labors. The second patient, whose condition was even more grave than that of the first victim, has recovered to such a degree he is fully able to care for himself and to be of service to other inmates of the hospital. His subcutaneous and cutaneous lesions, with the exception of several nodules still in the process of involution, have completely disappeared and all subjective symptoms such as cough, night sweats, headache, etc., completely subsided. He eats well and is gaining in weight steadily and, to all appearances, will be ready to leave the hospital and to resume his normal daily duties very shortly. Dr. A. Davidson, consulting dermatologist on our staff, who has cooperated in the observation of these two patients, expressed great satisfaction at the results of their treatment, and felt very encouraged by the possibilities colloidal copper is apparently offering in the treatment of this fatal infection. There is no doubt in my mind that these two victims have made a definite favorable response to this method of treatment. The progress of the disease has been checked, and their physical and mental well-being apparently restored. Whether this beneficial effect will endure or the condition will relapse in the course of time is as yet problematical. My own impression at this time is that the treatment will have to be continued for quite a while, perhaps months or possibly years.

The question of dosage also needs further study. For, if as now appears, copper has some sort of a specific action upon the causative parasites or upon the immunity of the sufferer, there certainly must be some optimum dosage which would best combat this infection, and which has yet to be determined.

MODE OF ACTION OF COPPER

Another factor which requires further investigation is the action of this drug in the treatment of this infection. While it is a well-known fact that copper is destructive to vegetable life and is at the same time fairly well borne by animal organisms, the extent to which we may utilize the therapeutic properties of this metal is a matter of conjecture and requires further study. Bevan² exploited this fungicidal action of copper in 1905, when he reported a series of cases of actino and blastomycosis apparently successfully treated with copper sulphate administered orally. In view of this it seems quite rational to expect that coccidioid granuloma, which is caused by an organism quite closely related to the Blastomycis should also respond favorably to copper medication. The results of its employment in my two cases herein reported so far justify this expectation.

SUMMARY AND CONCLUSION

Briefly summarizing, we have added two additional cases of granuloma coccidioides to the eighty-three cases of this disease recorded in the literature. It is my purpose to again emphasize the probability of this disease being more prevalent and widespread than the medical profession generally is inclined to believe. This view on my part is supported by the isolated instances of this

disease reported from the different centers of population covering extremely large areas. While heretofore conservative treatment has practically always failed to check the progress of this infection, the employment of copper in the treatment of these two patients has apparently caused a recession of the disease process. While I do not feel justified in heralding colloidal copper as a positive specific against coccidioid granuloma, I believe that, in view of the successful results achieved with this therapeutic agent in the two patients treated, its further employment on a more extensive scale is amply justified.

1016 South Alvarado Street.

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DISCUSSION

ANSTRUTHER DAVIDSON, M.D. (419 South Alvarado Street, Los Angeles)—As all previous remedies used in this disease have failed, I have watched the cases reported throughout the whole treatment with colloidal copper, and the results are certainly very encouraging. In the case with lung involvement the results were striking. I have heretofore never seen a case of lung involvement survive more than a few weeks.

Many more cases have been seen in California than have been reported, but I think it is not by any means confined to this state. As Doctor Jacobson has remarked, nearly all those cases are diagnosed as tuberculosis, quite forgetful of the fact that tuberculosis of the bones in the adult is a very rare affection, at least in California. If the surgeon instead of taking a section of the diseased tissues would examine a smear we would hear of many cases from other parts of the states.

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IRWIN C. SUTTON, M.D. (1680 North Vine Street, Hollywood)—I have been fortunate enough to follow a case of lung involvement with granuloma coccidioides, treatment started by Doctor Jacobson when the patient was practically moribund.

This patient later was shown before the dermatological section of the state society, and was practically recovered.

Although it is, of course, too early to evaluate colloidal copper in this disorder, the results are very striking.

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KENDAL FROST, M.D. (1023 Pacific Mutual Building, Los Angeles)—Doctor Jacobson's report on two cases of granuloma coccidioides is noteworthy.

I am inclined to disagree with Doctor Jacobson on the ubiquity of the disease. When the disease was first described in this state the question was raised in the East, particularly in Chicago, of its being a form of blastomycosis. I have never seen any case outside this state. One was reported last year from the Chicago Dermatological Association, the man having contracted the disease while living in New Mexico. It is possible that it is gradually working its way toward the eastern centers.

It will be very interesting if the excellent results obtained in these two cases are confirmed by a larger and more comprehensive series and by these cases remaining cured. It would be interesting to know the technique that was used in the treatment, the size doses and the intervals between treatments, what reactions are to be expected from injections of the substance, and what signs, if any, that the drug may have any irritating action on the internal organs, par-

ticularly the kidneys and the liver, where one would expect signs of irritation from the heavy metals.

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PHILIP H. PIERSON, M. D. (490 Post Street, San Francisco)—I was particularly interested in the two cases of coccidioides granuloma, reported by Doctor Jacobson, from the point of view of their pulmonary complications. It is true that the general picture presented by these cases simulates diffuse tuberculosis, but can be differentiated by careful laboratory analyses. I wish to emphasize this point because with incomplete examination patients have received improper and misdirected treatment.

Pulmonary lesions of coccidioides granuloma may simulate a diffuse miliary tuberculosis or a pneumonic consolidation, and healing doubtless takes place by the absorption of the exudate and a resulting fibrosis. The use of copper salts in the treatment of tuberculosis has been tried but largely abandoned because of the irritation of the kidneys. It is interesting to note that in these cases no such toxicity was present.

It is hoped that if cases of coccidioides granuloma are more numerous—and I feel that they must be—careful laboratory examinations, especially sputum analyses, will so segregate them that specific treatment may be applied.

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DOCTOR JACOBSON (closing)—In closing this discussion I wish to express my gratitude to the discussants for the generous fashion in which they have participated in the consideration of this paper. I am especially thankful to Doctor Davidson for the important point which he has brought out in his discussion, emphasizing the necessity of microscopic smears in the diagnosis of this condition. Only within the past six weeks have I been asked to outline treatment for a patient suffering from coccidioides who has been operated upon by two very prominent surgeons for tuberculosis of the bones of the forearm. The true nature of the disease was only revealed after the operation, through microscopic smears and cultures.

I am certainly appreciative of Doctor Sutton's testimonial, and wish to state that the patient referred to by him is still under my care and doing very well.

Doctor Frost is certainly at liberty to disagree with me on the ubiquitous nature of the disease, if he so chooses, but I wish to assure him that my statement in this connection is backed up by many recorded cases in the literature from different parts of the country, and from the different states already enumerated.

The dosage, intervals, and technique employed are one ampoule of colloidal copper into the gluteal region administered at intervals of four to seven days, depending upon reactions. So far we have been very fortunate in not noticing any unfavorable reactions, either local or visceral, from the use of colloidal copper.

I thoroughly agree with Doctor Pierson that careful laboratory examinations in many cases of so-called suspected tuberculosis will reveal the presence of coccidioides granuloma in regions heretofore unsuspected.

In conclusion I wish to state that since writing this paper two additional cases of this infection have come to my service at the Los Angeles General Hospital. Both of these patients have systemic involvement and are responding quite favorably to the treatment with colloidal copper. I intend to write a supplementary paper on the progress of these cases and on some experimental work that I am at this time carrying on in connection with this disease.

Baby Should Spend His Vacation Safe at Home—

The baby should never be exposed to the perils of vacationing, declares Doctor Thomson, writing in *Hygeia* for June. Home is the safety zone for babies. Even if the food and water supply are pure, the mere change from one supply to another is enough to upset the child badly, and he is not able to withstand exposure to the various diseases with which he may come in contact when away from home.—*Atlantic Medical Journal*.

STREPTOCOCCUS MUCOSUS INFECTION CAUSING LATERAL SINUS THROMBOSIS*

By H. J. PROFANT, M. D.
Santa Barbara

DISCUSSION by Hill Hastings, M. D., Los Angeles; Harrington B. Graham, M. D., San Francisco; Barton J. Poccell, M. D., Stockton.

THIS case would seem worth reporting because of the atypical course of an otitis media yet typical of the treacherous way the streptococcus mucosus infection acts. A study of the history, findings and progress of this case is very instructive from many standpoints; especially in its emphasis of the importance of observing even what may seem to be a mild infection of the middle ear. Last summer I was impressed by the emphasis stressed upon this type of infection by Doctors Alexander, Neumann and Rutin of Vienna while attending their clinics and I shall incorporate their teachings in the discussion of this case.

CASE REPORT

The report is as follows: A boy, age 7, patient of Doctor Coblentz of Santa Maria, had the following history: About the third of April, 1926, he developed a mild acute rhinitis and two days later complained of pain in the right ear. Doctor Coblentz was called and he found a very slight injection of the drum with no bulging and a temperature of 100°. He prescribed warm phenol and glycerine for the ear and rest in bed, and requested that he be notified if the boy did not improve. The mother stated that the pain subsided and she kept him in bed about four days. During that time the temperature was normal and in three days the mother considered him well enough to go back to school. For ten days he attended to his usual duties with no evidence of discomfort; then he suddenly became acutely ill. Doctor Coblentz was again called and found the boy had a temperature of 104° with all the signs of a beginning meningitis. The boy made no reference to the ear. A thorough general examination was made for possible source of trouble but nothing was found. The next day the meningitic symptoms were less marked, but the temperature remained up. The third day the temperature went down, all signs of meningitis disappeared and a few hours of calm were followed by a severe chill lasting fifteen minutes, then a temperature of practically 105° followed with profuse sweating. Twenty-four hours later the cycle was repeated and then the cycles came at shorter intervals.

I was called in consultation five days after the onset of the chills and fever and found the following: the boy appeared acutely ill, he had just had a severe chill followed by a temperature of 105° and a pulse of 130. There was no nystagmus and the fundi were normal; no signs of meningitis, nose and throat negative; no right mastoid tenderness; the whispered hearing test

* Read before the Eye, Ear, Nose, and Throat Section, California Medical Association, at its Fifty-Sixth Annual Session, April 25-28, 1927.

practically normal; Weber to right and right Rinne negative. The ear drum was dull, had no light reflex and appeared thick; no redness in the canal and no sagging of the posterior-superior canal wall. I advised an immediate exploration of the mastoid in spite of the late hour at night. On opening the cortex the superficial cells appeared entirely normal. The first impression was that a mistake in diagnosis had been made. I went down into the antrum through dense bone and was again surprised and disappointed; there was no free pus but merely a small amount of thick grayish-red granulation tissue. I then continued posteriorly and suddenly entered an abscess at the knee of the sinus; the dura and sinus had been exposed by the infection and the abscess was localized at this point. I did not explore the sinus for two reasons: first, because the condition of the patient was not good, and second, because I wished to obtain drainage without disturbing nature's barrier too much. When I incised the ear drum I obtained no pus, but was decidedly impressed with the peculiar thick feeling the incision produced. The next morning the boy was very much better, but twenty-four hours later had a cycle of chills and fever and another ten hours after that. I then decided to wait no longer, and under a light anesthetic I exposed the sinus and found an obturating thrombus. Doctors Thorner and Coblenz rapidly ligated the internal jugular above the facial vein, and I then removed the clot and free bleeding was obtained from above and below. There were no more cycles of chills and fever, but the boy was still very septic, showing the strain of ten days of septic absorption. For this reason ten ccs. of a 1 per cent mercurochrome solution were given intravenously on the first and third days following the second operation. He made a slow but uneventful recovery.

BACTERIOLOGY

In a consideration of the bacteriology one is referred to the work of Schottmuller, who classified three types of streptococcus.

1. *Streptococcus longus* or hemolyticus
2. *Streptococcus mitis* or *viridans*
3. *Streptococcus mucosus*.

Streptococcus hemolyticus forms long chains, and in blood agar lakes and decolorizes the blood in a halo around each colony. *Streptococcus viridans* and *streptococcus mucosus* produce a green discoloration in blood agar but no hemolysis, and the *streptococcus mucosus* forms glutinous colonies. The streptococci have been much studied of late and a great number of strains have been separated upon the basis of carbohydrate fermentation. When cocci of the morphology of the streptococci are found, it is first necessary to distinguish them from the pneumococcus to which they are closely related. Their colonies on ordinary media are similar; both are gram positive and about the same size. Colonies of pneumococci on blood-serum resemble those of the streptococci; colonies on blood agar show a green zone like those of streptococcus *viridans*. Pneumococci are soluble in bile,

streptococci are not and the pneumococci ferment inulin, streptococci do not. Upon the basis of immunologic relations, four types of pneumococci are found. Recently, after the work of W. L. Holman, the streptococcus *mucosus* has been classified by many bacteriologists as belonging to type III and called pneumococcus *mucosus*; however, this is still under question because strains have been found which hemolyzed blood, did not ferment inulin and were not bile soluble, whereas typical pneumococci do not act in that manner.

RUTTIN'S CLASSIFICATION

Ruttin gives a clinical classification of the bacteriology of otitis media and its complications; namely, capsulated and non-capsulated.

I. Capsulated are

- a. *Streptococcus mucosus*
- b. Diplococci or pneumococci

II. Non-capsulated

- a. Streptococci

He contends that the staphylococcus is never a primary infection in any acute suppurative otitis but is secondary as a contamination. Neumann and Ruttin carried out experiments for one year in which every myringotomy was done through a sterile glass tube and a culture taken. A streptococcus was found each time and the staphylococcus was not present until two or three days later, and then may predominate over the streptococcus. Judging from reports in the literature, Ruttin believes the hemolytic streptococcus is more common in America, whereas in Austria the streptococcus *mucosus* is more frequently found. He gives as a typical clinical picture the following: patient has a mild or moderate rhinitis and develops a slight pain in the ear associated with a fullness which seems to spread over half of the head. Very often the patient complains only of this fullness, diminished hearing and a buzzing in the ear. The tympanic membrane is reddish-gray and not transparent. The fullness and tinnitus is not relieved by Politzer inflation. In any case in which the hearing is not improved and the fullness and tinnitus are not relieved, the routine procedure is to do a paracentesis near the lower border of the tympanic membrane. When this is being done in a case of streptococcus *mucosus* infection, one has the feeling as Ruttin describes it of "cutting bacon." This is due to the fact that this condition has a tendency to form this type of connective tissue of mucoid consistency. You will note from the above description that the early stages of a streptococcus *mucosus* infection must be differentiated from the ordinary secretory catarrh of the middle ear, and if confused may be neglected with serious results. After this initial stage there is a latent period which may be a few weeks or several months, and since this infection has a tendency to grow in bone, intracranial complications are apt to develop. This third stage comes on suddenly. In the case I report the acute stage was mild and short, the latent period seventeen days and the third stage sudden and severe.

The right ear was the one involved. Statistics

have been compiled which show that the right lateral sinus is more frequently involved than the left in the proportion of three to two. (Campbell Laryngoscope, Vol. XXXII, No. 10, Page 775.) You will recall that the right lateral sinus is continuous with the superior longitudinal and is larger than the left, which is continuous with the straight sinus. The lateral sinus extends from the internal occipital protuberance to the posterior angle of the parietal bone; then turns almost vertically at what is known as the knee, into the sigmoid groove, where it is known as the sigmoid sinus. The knee is the portion which is most commonly attacked in an infectious process. The next in frequency is the jugular bulb, which is a downward continuation of the sigmoid. In doing the mastoid operation in this case I traced the infection from the antrum posteriorly to the knee of the sinus. Between the upper surface of this bend of the sinus and the mastoid roof is found in some temporal bones a triangular space. In this space the streptococcus mucosus had destroyed the bone and first formed an epidural abscess which caused the initial meningial irritation. Fortunately, for him, the dura covering the lateral convex surface of the brain is a tough and resistant structure, very loosely adherent to the inner plate of the skull. Unfortunately, in the region of the large venous sinuses the dura divides into two layers, one of which lines the bone and forms the outer wall of the sinus, and the other layer forms its inner wall. Thus a perisinous abscess may readily invade the sinus as occurred in this case. The upper half of the sigmoid plate had been destroyed. Experience teaches that granulations upon the dura are nature's process of walling off the infection; and some operators report good results in merely establishing drainage without attempting to remove the thrombus. I felt justified, therefore, in postponing any further work, especially since the boy's general condition was so feeble.

I feel that this procedure was an important factor in his ultimate recovery. The change in his general condition the morning following the operation was most gratifying. Even the two cycles of chills and fever which followed were less severe and distressing than those preceding. The ligation of the jugular vein was done very rapidly; the question of resection did not enter because the vein was normal. I was interested to hear Ruttin state that he never resects the vein even when found involved; he opens it and leaves it in an open wound of the neck so that he can syringe up through the jugular bulb. Only in extreme changes with marked destruction will he consider a resection.

As to the use of mercurochrome:

Judging from reports in the literature on this subject, the advisability of the use of intravenous injections of mercurochrome is still unsettled. At the Santa Barbara Clinic it has been used with varying results. Dr. Hilmar Koefod, internist, had one of the most dramatic successes with a pneumococcus meningitis following a pneumonia. The patient, a boy of 10, was given an intravenous injection of 1 per cent mercurochrome,

and the improvement was as dramatic as a change following a crisis. In Doctor Koefod's opinion, the improvement was definitely due to the mercurochrome; prior to its use the prognosis had been poor. Unfortunately, all severe infections do not respond as well following its use. We have had no unfortunate or fatal reactions and are tempted to use it in severe septic infections. In this particular case I am reporting, the principal object of the intravenous injection of mercurochrome was to attack the numerous foci of infection which had been spread from the infected thrombus during the cycles of chills and fever. The boy's general condition was definitely better following its use, as was evidenced by his less toxic appearance and improvement in the quality of the pulse.

I believe that the most valuable lesson from this case report can be summed up in the following adage: "Be concerned about every ear infection, no matter how mild it may seem." To me an anxious mother is a comfort. I usually say to her, "I know your child's ear will get well because you are worried about it." An anxious mother is observing and does not neglect to call for assistance. An early myringotomy is the means of preventing most of the serious complications. Other important conclusions are:

1. Streptococcus mucosus is a treacherous infection of the ear because of the mild onset; the latent period, which may be long; and the tendency to attack bone.

2. Streptococcus mucosus is classified by some bacteriologists as a pneumococcus mucosus.

3. A two-stage operation proved successful; first, the mastoidectomy which established drainage; second, the ligation of the internal jugular and removal of the infected thrombus.

4. Intravenous injection of 1 per cent mercurochrome aided in combating the sepsis.

1421 State Street.

DISCUSSION

HILL HASTINGS, M. D. (1136 West Sixth Street, Los Angeles)—Doctor Profant's paper impresses us anew with the danger of streptococcus mucosus infection. We all know, to our sorrow, how occasionally we are deceived by a false security in acute ear cases in which the infecting organism is the streptococcus mucosus.

One thought: it is quite remarkable how seldom sinus thrombosis occurs in acute mastoid disease when one considers that the small veins of the infected mastoid drain into the lateral sinus.

Doctor Profant is to be congratulated on doing an exploratory mastoid operation in the face of almost negative mastoid signs, but guided by the history of a recent acute infection which had apparently healed. Furthermore, he is to be commended in the prompt opening of the lateral sinus when septic signs continued.

As to ligation of the jugular I believe that otologists should, when a general surgeon is at hand, ask the general surgeon to do the ligation. The reason for this is that the general surgeon doing neck surgery can do the ligation more quickly than the otologist as a rule, and thereby save additional shock to the patient.



HARRINGTON B. GRAHAM, M. D. (Shreve Building, San Francisco)—That there is an organism that has a tendency in the adult to form a mucoid secretion in the middle ear and which is very apt to lead on after an insidiously mild course of from two weeks to four

months to intracranial complications, there is no doubt in spite of the discussion as to how the organism may be classified.

Schottmuller described the organism bacteriologically, and Neuman and Rutin followed it with Gohn clinically and in the autopsy room until they had a well-marked picture of its ravages to which very little has been added. I reviewed this work in the *Annals of Otolaryngology* in December, 1910, and in September, 1913, described two cases of perforation of the petrous portion of the temporal bone due to the streptococcus mucosus. In Vienna I saw a case that had been operated for an acute mastoid. The patient had healed and was back at work. About a month after the operation he came to me stating that his head was feeling somewhat peculiar and he thought he would see if there might not be something the matter with the ear. Everything was apparently normal and the man made so little of his symptoms that I judged that he was still oversollicitous. That afternoon he was brought in unconscious and died in a few hours, autopsy showing an old meningitis with a membrane covering the dura a quarter cm. thick. The organism was streptococcus mucosus.

It is interesting that I have not seen a case for years. I believe these become virulent in cycles.

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BARTON J. POWELL, M.D. (United Bank and Trust Building, Stockton)—Fortunately such a case as was so efficiently handled by Doctor Profant does not occur very frequently.

The profession in general and aurists in particular should offer congratulations to Doctor Profant. In the San Joaquin Valley I have seen mastoid after mastoid operated upon with uninterrupted convalescence. It is this occasional infection with obscure symptoms that should be kept in mind that a life may be saved.

As Doctor Profant says, "be concerned about every ear infection no matter how mild it may seem."

COMPARATIVE INCIDENCE OF PELVIC PATHOLOGY*

By HOMER CARLTON SEAYER, M.D.
Los Angeles

DISCUSSION by Ludwig A. Emge, M.D., San Francisco; Thomas O. Burger, M.D., San Diego; George Joyce Hall, M.D., Sacramento.

THE relative incidence of the various types of pelvic pathology, the frequency of associated pathology, and other practical points of interest derived from a study of 1000 consecutive abdominal pelvic operations, most of which were done by members of the gynecological staff of the Los Angeles General Hospital during a two-year period, are the points under consideration in this paper.

This list does not include all of the major pelvic cases, nor does it include any of the preoperatively diagnosed carcinomata of the cervix and only a few of the extrauterine pregnancies which enter the hospital. No mention is made in this paper of pathological conditions in the lower genital tract, nor will there be an attempt to enumerate the various microscopical findings.

Textbooks treat each disease of the female pelvis as a definite clinical and pathological entity and definite laws are set down for the management of each separate type of pathology. Practically, this isolated classification is misleading,

as operation so frequently reveals more than one type of pathology.

The following cases will be grouped under the major pathological condition present and the pelvic lesions occurring coincidentally with this major pathology, will be termed the associated pathology.

Of these 1000 cases, the major pathology was diagnosed as follows: 409 cases of pelvic inflammatory disease; 317 fibroids; 124 abnormal displacements of the uterus; 94 benign ovarian tumors; 29 malignancies; 18 extrauterine pregnancies; and seven adenomyomata. Two normal pregnancies were wrongly diagnosed as pathological conditions.

APPENDICITIS

Of the 1000 cases, the appendix was surgically absent in 157. In 399, it was considered normal and not removed, or pronounced normal by the pathologist after removal. In 444 out of a possible 843, or 52 per cent, the microscopical diagnosis was subacute, chronic or periappendicitis. This diagnosis was returned in seven cases of extrauterine pregnancy; 17 uncomplicated displacements of the uterus; 98 uncomplicated benign pelvic tumors and in 322, or 78 per cent, of the 409 cases of pelvic inflammatory disease.

Pathologists state that there is no difference, microscopically, between these and primary appendices. If this is true, the following inferences may be drawn from the above figures; either that the occurrence of chronic appendicitis secondary to pelvic disease is of little significance or else there is a definite risk taken in the non-surgical treatment of any type of intrapelvic pathology.

EXTRAUTERINE PREGNANCIES

In 18 cases, the major pathology was extrauterine pregnancy. The scarcity of this condition is due to the fact that these are assigned to another service. Most of the cases in this group were of long duration and secondarily infected.

UTERINE DISPLACEMENTS

There were 124 cases of uterine displacement which were treated by abdominal operation. The list includes all the various degrees of prolapse in which some sort of suspension could be used for their relief. The apparently large percentage of this condition is explained by the fact, that, in 84 of the cases, there was present, aside from the displacement, other pelvic pathology which called for surgery. The youngest patient was 16, the oldest 70, and the average 29.

BENIGN OVARIAN TUMORS

In 94 cases the major pathology was a benign ovarian tumor. There were all types from the simple follicle cyst to the massive papillary cystadenoma. The youngest patient was 18, the oldest 70, and the average 39. Excision of the tumor, only, was done in 38 cases and an accompanying hysterectomy in 56. There were no deaths in this group.

MALIGNANCIES

That only 29 cases of malignancy are recorded is due to the fact that no preoperatively diagnosed cancers of the cervix are included. The total of

* Read before the Obstetrics and Gynecology Section of the California Medical Association at its Fifty-Sixth Annual Session, April 25-28, 1927.

29 cases were divided as follows: 16 carcinomata of the ovary; six carcinomata of the fundus; three carcinomata of the cervix; three chorion-epitheliomata and one sacroma of the ovary.

FIBROIDS

There were 317 cases of fibroids. The youngest patient was 19, the oldest 60, and the average 37. Of these, 11 were treated by myomectomy, 16 by panhysterectomy and 290 by supravaginal hysterectomy. From these figures, it is evident that members of this staff do not believe in routine panhysterectomies. Where the cervix was badly diseased, it was either repaired or cauterized.

There were eight operative deaths in the hysterectomies, making a total mortality of 2.5 per cent. However, two of these were very bad, but necessary risks. Excluding these two cases, the mortality per cent was 1.9.

Of the 317 cases of fibroids, there were 171 or 53 per cent in which this form of new growth was the only pelvic pathology present. In 146 or 46 per cent, there were associated pelvic lesions, as ovarian cysts, pelvic inflammatory disease, etc. This associated pathology was recognized, preoperatively, in 114 cases, or 78 per cent, and unrecognized in 32, or 21 per cent. These cases were all studied from the standpoint of history, laboratory work and physical findings and examinations made by one, two or more of the attending men. No apologies are being made, as it is believed that a similar discrepancy would appear in any other series. This brings up an important point, however, in regard to treatment. It is the opinion of the majority of gynecologists who use radiation that the latter is contraindicated in cases of fibroids where there exists a pelvic inflammatory disease. Therefore, realizing the frequency of unrecognizable pelvic inflammatory disease in association with fibroids, one should be hesitant, except in very specific cases, in recommending radiation, in place of a comparatively safe method of therapy, namely, surgery.

PELVIC INFLAMMATORY DISEASE

There were 409 cases in which the major pathology was tubal infection; including all types, postpartum, postabortal, specific and tuberculous. In the majority of cases there was an associated ovaritis or a chronic pelvic peritonitis. The youngest patient was 14, the oldest 62, and the average 25.

The pathology was taken care of in the following manner: There were 39 in which the adnexa on one side and the uterus were saved. In 194, supravaginal hysterectomies were done with the retention of ovarian tissue wherever possible and, in a few cases, ovarian transplantation. In the remaining 176 cases the operation consisted of bilateral salpingectomy with the retention of the uterus and one or both ovaries. The operative mortality for the hysterectomies was 1.5 per cent, the same as existed in the cases where both tubes were removed and the uterus left in place.

Of the 1000 laparotomies, there were only four done to remove an infected uterus which had been left in place at the time of a previous bilateral salpingectomy. Of the 176 cases, in this report,

where the uterus was retained after the removal of both tubes, none have had to be reopened. The period that has elapsed since the operations has varied from five months to two years.

Replies from the heads of different clinics would indicate, beyond a doubt, that there are two radically opposed schools in regard to the disposition of the uterus in cases of pelvic infections: one believing that without the opportunity for childbearing, it is a useless organ; the other, that the part it plays in menstruation is of value. Culbertson states that "the menstrual function is one of the features of normal health, and anything which tends to preserve normal health is desirable in the cure of pelvic disease in women." He reports 246 cases, or 55 per cent, of his operated inflammatory cases in which both tubes were removed and a portion of the uterus left in place. His follow up record shows no occurrence of a premature menopause, and no continuance of excessive bleeding.

It is difficult to accept the belief of those who state that the ovaries, except for reproduction, are of little value after the age of maturity, which is placed at 23. At least, they have some influence on menstruation, and, that the latter is of some practical value to the well-being of a woman, may be derived from the following:

This question was sent to 500 women under 40 years of age, who had had hysterectomies: "Do you think that you would be better satisfied if you still flowed normally every month?" There was no thought, here, of menopausal symptoms, but merely the reaction of a woman toward the loss of a normal function. And that reaction was very definite. To the 203 replies, have been added 72 personal reports. Twenty-four were irrelevant and had to be discarded; 86 of the remaining 251 felt satisfied that they were rid of a useless organ, and, in many instances, termed it such. However, the majority of these replies were from women who, previous to their operations, had had persistent uterine bleeding for many months or years, due to fibroids.

The other 165, or 63 per cent, were even more emphatic, in their desire to express the feeling, that they had been robbed of a normal function. In view of the above, and the fact that only four out of 1000 abdominal cases were reoperated as an end result of retention of the uterus; and in view of the large number of similar operations done in this series, with good results, there is a definite indication for uterine preservation after bilateral salpingectomy, and that indication is especially strong in the case of young women. There are differences of opinion as to the best method of carrying out this conservative surgery. Some men advocate various modifications of the Bell-Buettner defundation operation. Probably better results will be obtained by the usual method of deep cornual excision with peritonization by means of the round ligament.

CONCLUSIONS

1. Pelvic pathology is usually more extensive than indicated by clinical history and physical examination.
2. In the reported cases of pelvic inflamma-

tory disease, 78 per cent showed a secondarily infected appendix.

3. Unrecognized salpingitis frequently accompanies uterine fibroids. This point should be borne in mind when determining the method of therapy for these new growths.

4. Young women, whenever possible, should be allowed to retain the menstrual function.

1136 West Sixth Street.

DISCUSSION

L. A. EMGE, M. D. (350 Post Street, San Francisco)—There is at present a decided trend toward conservation in gynecology. It is most gratifying to hear an expression based on a sufficiently large number of observations. Doctor Seaver's brief survey succeeds admirably in presenting some of the salient points now frequently discussed in the literature. There is much to be said about the routine appendectomy in the absence of demonstrable pathology in this organ. Such a procedure should be entirely guided by operative circumstances and age, since it will increase the surgical hazard in spite of the most careful technique. I doubt the wisdom of removing a normal appendix at the end of an extensive pelvic operation or in a patient after the age of 40. Similarly, I believe that in the case of fibroids the type of hysterectomy does not necessarily have to be a complete operation. The incidence of cancer in the cervical stump is very low. On the other hand mortality rates rise with the removal of the cervix in depleted patients. While it is advisable to remove the cervix in many instances, the state of the patient should govern our decision. Surgery still takes the preference over radiation in tumors larger than a three-months' pregnancy. It always should be chosen if inflammatory changes in the pelvic organs are discovered or suspected.

Conservatism in pelvic surgery in the presence of inflammatory disease is one of the paramount issues of present-day gynecology. Here, too, circumstances alone can guide our decisions. While I believe with Doctor Seaver that the effect of menstruation on the psychologic balance of the average patient is of great importance I also believe that one must not confound good judgment with the sentimental aspects of this question. It is the innate nature of the average woman to bemoan the loss of normal uterine bleeding prior to the termination of her allotted time of menstruation when her attention is drawn to the subject. I am sure that such an expression in many instances is only a momentary outburst of resentment. If a patient is properly prepared mentally prior to a destructive operation, if it is explained that her sex-psychic life will be little if at all disturbed and that organotherapy will lighten her menopausal reactions, the psychic shock is very negligible. Nevertheless, any feasible attempt to preserve menstruation under forty is preferable to destructive surgery.

I congratulate Doctor Seaver for the presentation of this timely paper.

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THOMAS O. BURGER, M. D. (1301 Medico-Dental Building, San Diego)—Doctor Seaver has done a good piece of work in his careful analysis of one thousand cases in pelvic surgery and has made some valuable deductions. Three problems are presented of most importance to the future safety and comfort of women. (1) The removal of an appendix is a problem of judgment. In most younger women, if too much traumatized or unperitonized areas are not present, it should be done. Do not forget that the controversy as to inversion or not is evidence that the colon bacilli may get through into a fertile field, especially if resistance is none too great. Pathologic reports of incidentally removed appendices are of very varying proportions. Some good pathologists report all (100 per cent) as showing some form of inflammation. (2) Almost 75 per cent of the thousand cases were for fibroids and pelvic infection later (mostly pus tubes). Either or both of these conditions often exist in women who do not require surgery. Many fibroids

are of no consequence and are merely operated on as an excuse. If let alone and the patient not told of their existence, they never cause any harm or mental anguish. A certain number of pelvic infections will become quiescent and, in fact, clear up so that no local or systemic disturbance will follow. This is known to us all, especially if a period of rest in bed and abstinence from a chronically gleety husband is enforced. If these cases are permitted to let nature do her part, function in many cases will be better than it would be if radical surgery was done. I realize that the class of patients in a county hospital are not the same as a clientele of private patients. (3) The third and hardest problem to decide in infection is how conservative or radical one must be. Doctor Seaver has given good logic. Voluminous discussion might be granted to this problem. In the main, the uterine and ovarian tissue should always be conserved. The younger the woman the more this is true. A woman must live with herself, and if she knows her sex organs are gone it matters not how well you may have tried to prepare her before or to convince her later of the absolute necessity of their removal, she will come back with, "Well, I had just as soon be dead"; and particularly so if some doctor has told her that no matter what the trouble was he would never have done a total removal.

The infected uterus does occasionally have to come out later. Quite as often does the ovarian tissue, which you tried to preserve, give so much trouble that a second operation is demanded. But the sum total of misery either physical or psychological of unsexed (?) women, against the four uteri as in Doctor Seaver's series of retained uteri and probably a few from ovarian tissue left, is far in favor of conservatism.

This is merely duplicating and emphasizing Doctor Seaver's deduction or opinions, and cannot be too well kept in mind when such a situation presents itself.

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GEORGE JOYCE HALL, M. D. (502 Physicians Building, Sacramento)—One frequently has to curb the tendency during the discussion of a paper to keep away from personal hobbies and to keep within the subject presented.

Pelvic inflammatory disease in Doctor Seaver's series has, as is generally the case, the highest percentage of cases, and by the same token fibromata has its usual position on the scale. And so with the rest of the series there is a fairly close approximation to the general findings. So that as a matter of fact any discussion must of needs digress somewhat to include opinions expressed other than statistics.

Conservatism has probably a wider field of justification in pelvic surgery than in any other group of cases. The appendix, with its apparently unknown function, has routinely been removed in all short pelvic operations for a number of years, but all gynecologists have found the added time and extra trauma to be a heavy burden to the patient when a long operation has been performed, or if the patient's general condition is poor. So that it has become just as routine a procedure to leave in an apparently normal appendix in recent years, as it was routinely to remove it some years ago.

It has been my opinion in the past that a fibroid uterus with a badly diseased lacerated cervix showing endocervicitis, should be removed in toto. This last three years, however, we have thoroughly cauterized the cervix and its canal, and feel entirely safe in doing a supravaginal hysterectomy. During this same period of time we have completely cauterized the cervix before panhysterectomy for all operable cases of malignancy, even though the specimen is ruined for pathological examination.

Cases which have been previously operated on always cause me a bit of preoperative worry, because so frequently the patient has only a vague idea of the surgery done before, and, too, the inflammatory and traumatic adhesions definitely complicate so many cases. Indelicate and unnecessary handling and "mauling" of the viscera is so unjustifiable and causes

so much other trouble that I believe it cannot be too frequently criticized.

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DOCTOR SEAVER (closing)—The above discussions emphasize the present trend toward conservative pelvic surgery.

For some strange reason, woman was so planned that for a certain period of her life menstruation is a normal function. It does not seem to be within the province of mere man to put an end to that function unless absolutely necessary. One dissatisfied woman should be sufficient reason for conservative thought. One hundred and sixty-five, or 63 per cent, is a definite indication for conservative practice. The incidence of the normally menstruating woman will be higher as more of her own sex are admitted to the practice of medicine.

The question of routine appendectomy was mentioned by the three discussants. Here, too, conservatism is in evidence, so that in the future it may be that woman will be permitted to retain her normal appendix. However, when that organ is removed during the course of a pelvic operation the method of procedure seems most important. Some few clinics which advocate routine appendectomy still adhere to the old rule of removing the appendix first, with the idea of preventing contamination from the pelvis. This seems indicated only in cases where the pelvis is the seat of infected pus. No matter who the surgeon is there is always an increased risk to the patient from the time consumed in an appendectomy, and that risk should be taken after the major pathology is cared for and not before.

ANESTHESIA—SOME OF ITS POSTOPERATIVE PULMONARY COMPLICATIONS*

By L. R. CHANDLER, M. D.
San Francisco

THERE can be no doubt that postoperative pulmonary complications are surprisingly frequent, and often severe. Statistics show that some pulmonary complication develops in one patient in every fifty who is operated upon, regardless of the anesthetic used, and that one patient in every three hundred operated upon, dies as the result of such a complication. To discuss all phases of this subject at one time is too much of an undertaking. However, certain definite types of postoperative pulmonary complications may be recognized clinically, and it is my purpose to present some of these types, to discuss their possible etiology, and to indicate certain measures which might lessen their frequency. Fat embolism and the effect of anesthesia upon pulmonary tuberculosis will not be considered.

THE EARLY INFLAMMATORY COMPLICATION

The complication which comes soon after the operation is probably the most common type of postoperative pulmonary complication. It occurs within twenty-four to forty-eight hours after operation, is manifested by a fever which may range from 101 to 105 degrees F., usually unaccompanied by an initial chill. The breathing is rapid, shallow, and the movements of the upper thorax are often exaggerated. There is little or no pain, the pulse is rapid and weak, and the cough is at first unproductive. Râles or signs of consolidation in the lungs are sel-

dom found at the onset of the early complication. During the course of the disease, the cough produces purulent phlegm, loud bronchial râles are heard throughout both lungs, and small scattered areas of bronchopneumonia may appear, usually at one or both bases. The fever falls by lysis, and the patient is usually well in nine or ten days.

Case I illustrates this type of early complication.

CASE I—Mrs. F. S. Age, 38 years. Diagnosis: cholecystitis and cholelithiasis with stone in common duct.

October 2, 1926—Operation: cholecystectomy and drainage of common duct. Anesthesia: nitrous oxide and oxygen, novocain infiltration of the abdominal wall. During the operation the patient's breathing was labored and "grunting" in character, and muscular relaxation was poor. At the close of the operation the patient vomited several ounces of fluid characteristic of an acutely dilated stomach. She coughed several times and became cyanotic, which required the administration of oxygen for several minutes.

After leaving the operating room, the patient's respiratory rate rose to 30-40 per minute, pulse to 120-30, but the temperature remained below 100 degrees F.

October 3, 1926—At 8:45 a. m. the day after operation, the patient coughed up about one ounce of fluid similar to that which she had vomited in the operating room. The temperature had risen to 105.2 degrees F., pulse to 140, and respirations to 32-50. Breathing was shallow with marked movements of the upper thorax. There was no pain, but a moderate, unproductive cough. Examination of the chest showed no râles or signs of consolidation.

The patient then began coughing up mucopurulent sputum and within two days the respirations were free, at the rate of 30 per minute. Loud, harsh, sonorous râles were heard in both lungs the second day. On the fourth day a small area of bronchial breathing and dullness appeared in the posterior part of the lower left lobe. The fever fell gradually, the cough and area of consolidation disappeared, and on the eighth day the temperature was normal and the lungs were clear. The healing of the abdominal wound was not disturbed, and further convalescence was normal. Unfortunately no roentgenograms could be made of this patient, but Fig. I shows the variations in temperature during the first ten days.

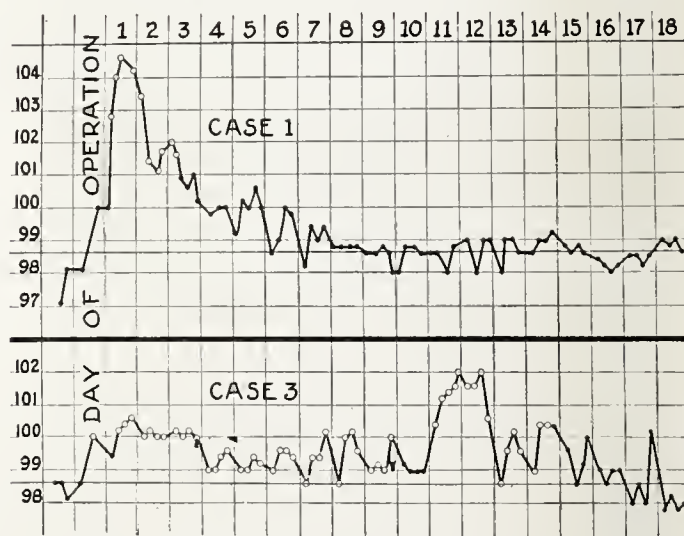


Fig. I—Contrasting the temperature charts in a case of early inflammatory complication (Case I) and a case of late inflammatory complication (Case III).

Some patients do not have so severe a condition as that shown by Case I, and except for a mild bronchitis no pulmonary disease can be demonstrated. Frequently such mild complications are not recognized and the surgeon blames the operative wound for the patient's fever. Other patients are unable to withstand the severity of the disease, and death occurs at the onset the first or second day after the

* From the Department of Surgery, Stanford University Medical School, San Francisco, California.

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operation. The early pulmonary complication is not usually followed by empyema, unresolved bronchopneumonia or lung abscess, although such complications do occur. Usually a general anesthetic has been given, with considerable difficulty in its administration. The breathing during the operation is not free and easy, as it should be, and the anesthetist's report often includes such statements as, "relaxation poor," "cough troublesome," "cyanosis moderate or extreme," "vomiting," etc.

Case II illustrates an early pulmonary complication followed by an area of unresolved bronchopneumonia in which a pulmonary abscess developed. It is interesting that this patient had suffered with chronic bronchitis and mild attacks of asthma for several years.

CASE II—Mr. J. L. Age, 45 years. Diagnosis: cholecystitis and appendicitis.

February 23, 1926—Operation: cholecystectomy and appendectomy. Anesthesia: ether with nitrous oxide induction. The anesthetist's report states that the patient's breathing was difficult, labored, and diaphragmatic in type. There was moderate cyanosis, and muscular relaxation was poor.

February 24, 1926—The day after operation the patient complained of difficulty in breathing, but not of pain. His temperature rose to 105 degrees F.; pulse, 120-132; respirations, 26-32. Examination showed many coarse râles in both lungs and a small area of distant breath sounds at the right base. A roentgenographic examination showed some hazy patches of consolidation at the middle and lower portions of the right lung field. This was interpreted as an area of bronchopneumonia.

The next day the patient had an unproductive cough and fever of 103 degrees F., with no change in the pulmonary signs. The fever continued from 100 degrees F. to 101.6 degrees F., for eighteen days, when the temperature rose to 103 degrees F., and the area of consolidation at the right base was found to be increased. On the twenty-second day the roentgenographic examination showed an air-filled cavity in the axilla, under the sixth rib. The cavity measured 5 cm., and was half-full of fluid. (See Fig. II.)

The lung abscess was drained by rib resection. Five weeks later the patient was dismissed from the hospital.

Comparing Cases I and II, the pulmonary complication began in both cases within twenty-four hours after operation with a very high fever and comparatively few signs in the lungs. Case I recovered in nine days, but in Case II a lung abscess slowly developed. The complication in this instance was probably dependent upon the pre-existing pulmonary disease.

THE LATE INFLAMMATORY COMPLICATION

Another form of pulmonary complication is that which occurs several days after the operation, preceded by an interval of uncomplicated convalescence. The most frequent time of occurrence is on the eighth to the twelfth day, although some cases of this type occur as soon as the second day or as late as the third week. The onset is sudden, the patient frequently dating it to a certain hour. Pain throughout one side of the chest is the first complaint, made worse by deep breathing or body movements; consequently breathing is shallow and rapid. Cough is painful, and about one-third of these patients have blood-tinged sputum. A moderate fever, 102-103 degrees F., usually of the septic type, develops. Examination of the chest soon after the onset of symptoms frequently shows a friction rub, diminished breath sounds, and dullness to percussion over a restricted area. This area of consolidation may be in any part of the lung, upper, middle, or lower, but it is most frequently seen in a lower lobe. In the course of the disease, pain may remain a prominent feature, the fever falls gradually, and the signs of consolidation slowly disappear.

The following case illustrates this late inflammatory complication:

CASE III—Mr. P. S. Age, 28 years. Diagnosis: appendicitis, chronic. Operation: August 13, 1925. Appendectomy and exploration of abdomen. Anesthesia: ether with nitrous oxide induction.

The recovery was uneventful for ten days, temperature never above 100 degrees F. after the first day, and

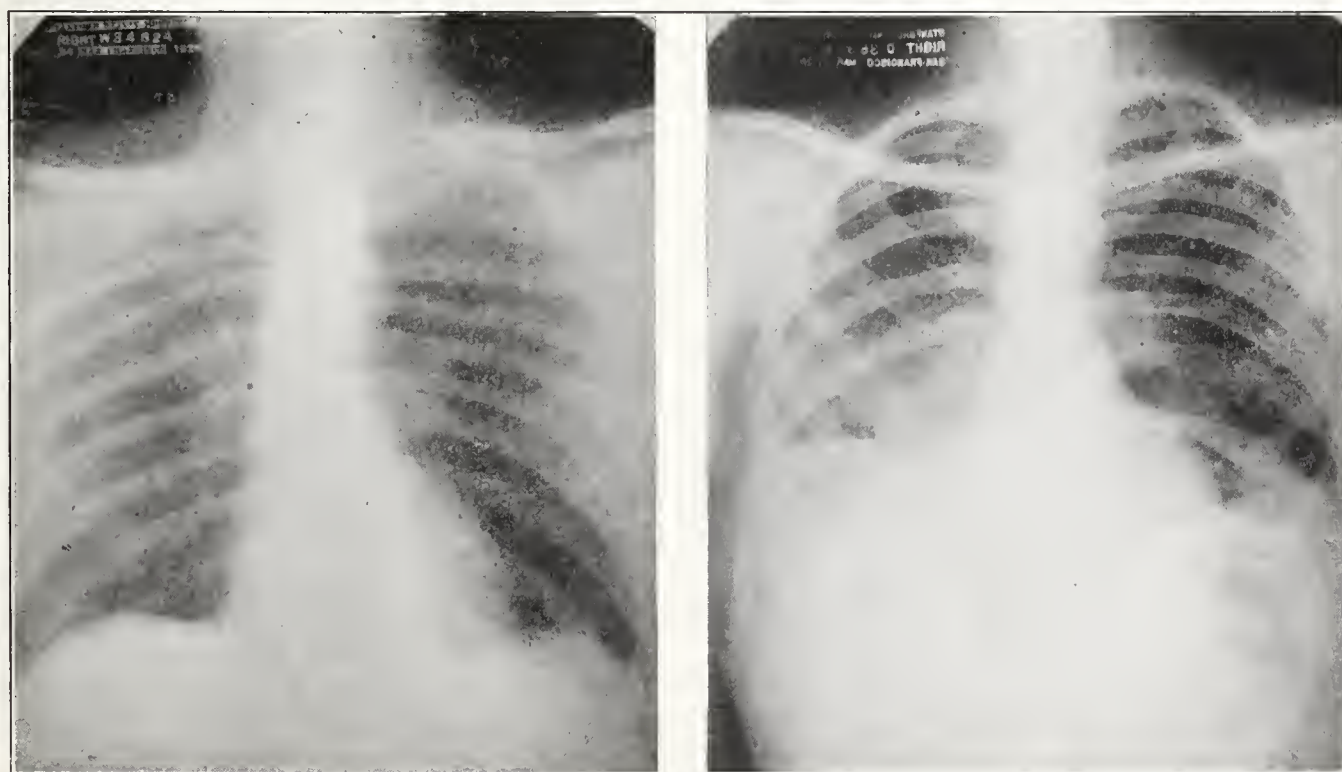


Fig. II—Case II—Early Inflammatory Complication. The film on the left was made the day after operation, when the pulmonary symptoms appeared. Note the moderate density in the right lower lobe. The film on the right was made twenty days later. A large abscess cavity half-full of fluid is seen in the right lower lobe.

the patient had no complaints. However, at 5:30 a. m. of the eleventh day after operation, the patient had a sudden attack of severe sharp pain all over the left side of his chest, radiating to the left shoulder, made worse by breathing or body movements, but he did not cough. The temperature rose to 102.2 degrees F., pulse to 100, and the respirations to 22 per minute. The leukocytes numbered 16,000 with 86 per cent polymorphonuclears. Examination of the chest showed a limited excursion of both bases with bronchial breathing, dullness and râles at the angle of the left scapula, and a friction rub heard in this area. The following day the roentgenologist reported, "The costodiaphragmatic angle is denser on the left than on the right. There is pleural thickening at the left base, with a small amount of fluid posteriorly."

The daily fever, pain on deep inspiration, and signs of consolidation disappeared slowly, and the patient was not dismissed from the hospital until twenty-five days after the onset of his pulmonary complication.

The temperature charts of Case I illustrating the early inflammatory complication, and Case III illustrating the late inflammatory complication, are seen in Fig. I.

The late pulmonary complication may follow operations under local as well as general anesthesia. It is frequently accompanied or followed by empyema, or lung abscess, is frequent after abdominal or pelvic operations and operations on the throat, mouth, or neck. During the interval between the operation and the onset of the attack there frequently is a slight fever, seldom more than one degree. That the severity of the attacks vary is to be expected, and the dreadful disaster of massive pulmonary embolus with sudden death is only too well known to all clinicians. The other extreme, a sudden attack of pleurisy lasting twenty-four to forty-eight hours, with little or no fever, is a fairly common occurrence.

Case IV illustrates a late complication which resulted in empyema and lung abscess.

CASE IV—Mr. G. A. Age, 35 years. Diagnosis: tonsillitis, chronic.

February 10, 1921—Operation: tonsillectomy and ad-

enoidectomy. Anesthesia: ether with nitrous oxide induction.

The convalescence was uneventful for four days, the temperature never above 100 degrees F. On the fifth day, there developed pain throughout the right chest, fever, and cough with bloody sputum. Examination of the chest showed an area of dullness at the right base, and diminished breath sounds and bronchial breathing in the same area. The condition grew worse, a pleuritic rub developed, and on February 21, the sixth day after the onset of pain, the roentgenologist reported an area of density, somewhat triangular in shape, at the right base. The fever and leukocytosis increased. An empyema and a gangrenous abscess of the lung developed, and the patient was operated upon four times before he was cured.

Fig. III shows the pulmonary condition six days and forty days after the onset of the pulmonary complication.

POSTOPERATIVE MASSIVE COLLAPSE OF THE LUNG

A third type of pulmonary complication, called "postoperative massive collapse," is considered separately because it does not seem to be inflammatory. It presents characteristic signs and symptoms. The attack usually comes within a few days after operation. There is respiratory distress, with short rapid breathing, pain in one side of the chest, moderate fever, rapid weak pulse, and a cough which is at first dry and unproductive. Examination of the chest shows almost complete lack of motion on the affected side, and retraction of the fossae and intercostal spaces is seen in many cases. The heart is greatly displaced toward the affected side, the affected lung is dull to percussion, and the breath sounds and fremitus are markedly diminished or absent. This condition is seldom fatal, and a majority of cases return very quickly to nearly normal. This disappearance of signs and symptoms is often preceded by the patient's coughing up a considerable quantity of thick mucus, and the improvement frequently takes place in the course of a few min-

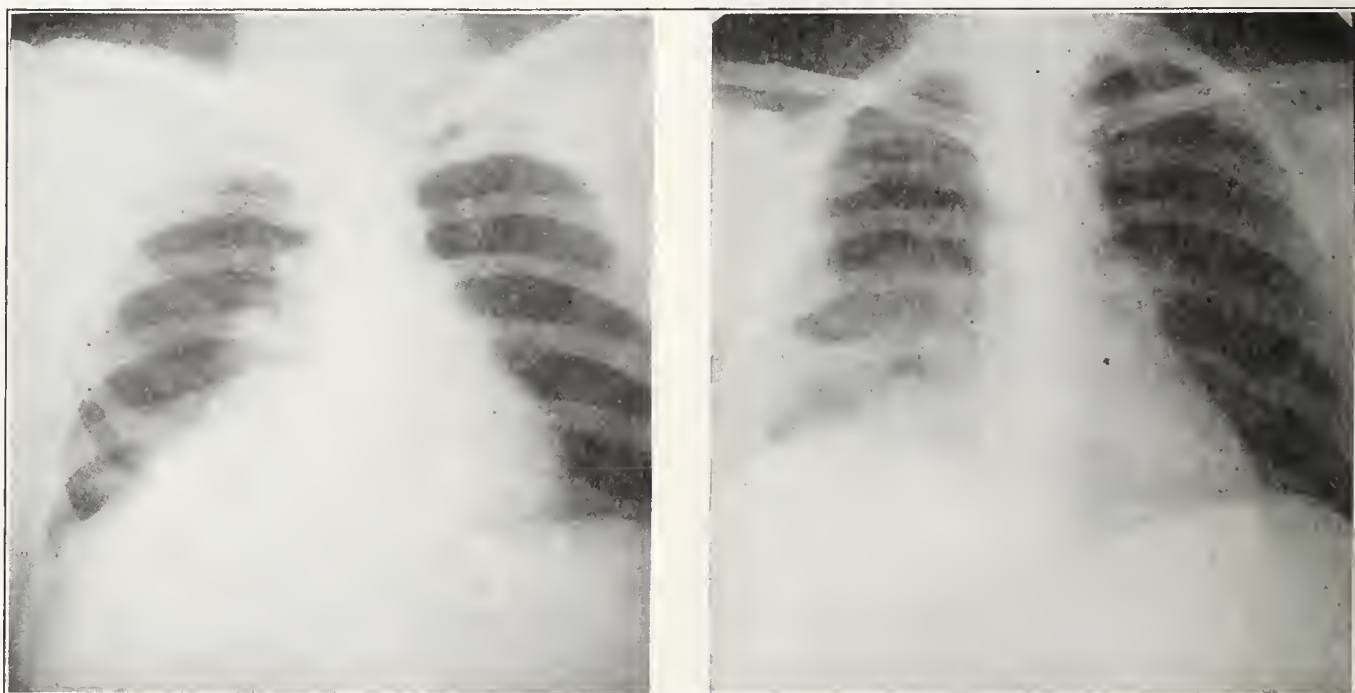


Fig. III—Case IV—Late Inflammatory Complication. Pulmonary symptoms appeared five days after the operation. The film on the left was made six days later (eleven days after the operation). Note the consolidation in the mesial portion of the right lower lobe. The film on the right was made forty days after the onset of pulmonary symptoms. Heavy pleural thickening persists after drainage of empyema. A gangrenous abscess has developed in the right lower lobe.

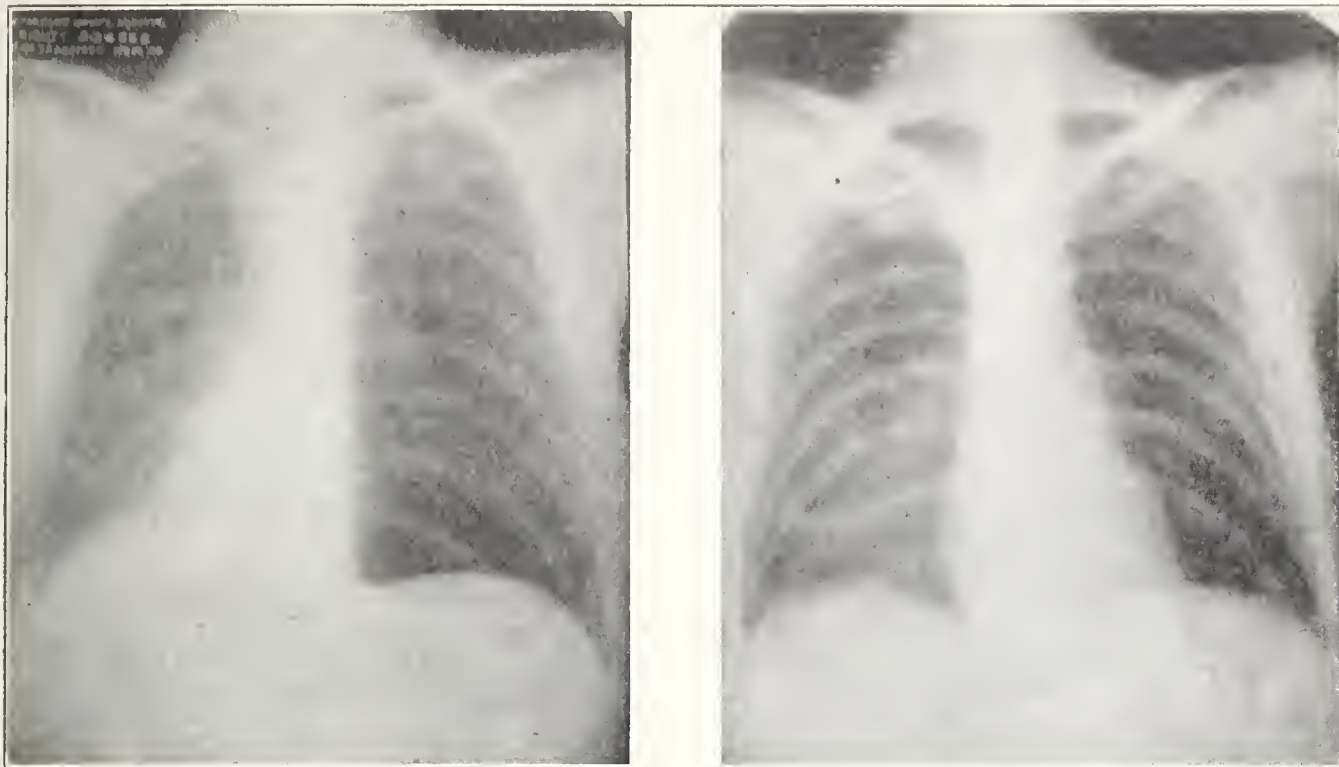


Fig. IV—Case V—Postoperative Massive Collapse. The film on the left was made the day after operation, when the pulmonary symptoms appeared. Note the small volume and relatively airless condition of the right lung, the pulling in of the ribs on the right, the marked displacement of the heart and mediastinum to the right and the upward displacement of the right side of the diaphragm.

The film on the right was made twenty-four hours later. The right lung has re-expanded spontaneously, leaving, however, a little consolidation in the inner portion of the lower lobe.

utes. In other patients the improvement is gradual and the signs disappear slowly.

Case V illustrates "Postoperative Massive Collapse" in a patient recovering spontaneously.

CASE V—Mr. I. L. Age, 38 years. Diagnosis: carcinoma of stomach. Operation: February 18, 1926. Pylorotomy and gastrojejunostomy. Anesthesia: ether with nitrous oxide induction.

At 3 the next morning, February 19, 1926, the patient complained of shortness of breath, irritation in his throat, and inability to clear his throat by coughing. By 9 o'clock his breathing was labored, the accessory muscles of respiration were being used, and there was moderate cyanosis. The respirations were 32 per minute, the pulse 140, and the temperature 102.4 degrees F. Examination of the chest showed the movements of the right side markedly limited, and the clavicular fossae retracted. The cardiac movements were visible on the right, but the apex beat could not be seen or felt. The right lung was dull to percussion, and the breath sounds and fremitus were greatly diminished. Roentgenograms taken that morning were reported: "The whole right lung field is rather grey. The heart and mediastinum are displaced far to the right. The left lung field is not remarkable." The patient's condition remained unchanged throughout that day, February 19, 1926. During that night, however, he coughed up a considerable quantity of thick mucus, and was relieved almost immediately of his respiratory distress. Examination the next morning, February 20, 1926, showed both sides of the chest moving freely and that the retraction of the right clavicular fossae had disappeared. His color was good, both lung fields were resonant, the respiratory rate was 22, and the temperature was 100 degrees F. The second roentgenogram, made just twenty-four hours after the first one, showed the right lung field expanded again to nearly normal volume, and the mediastinum returned to the midline. The lower mesial portion of the right lung field showed a fuzzy, finely mottled density suggesting consolidation. This patient's condition was good from that time on, and except for a mild cough for three days he had no complaints and there were no signs of pulmonary disease.

Fig. IV shows the lung during collapse, and

twenty-four hours later, when it is almost completely inflated again.

COMMENT

A study of the literature shows that the causes of postoperative pulmonary complications are not agreed upon, as many different opinions have been expressed. Foremost among these are direct pulmonary infection or irritation, pulmonary embolus and infarction, and lung deflation or collapse.

The early inflammatory complications, frequently called "ether pneumonia" "postoperative pneumonitis" or "surgical bronchopneumonia," seem to have the widest variety of causes ascribed to them. The anesthetist is most frequently blamed for this type. Certain it is that most of these patients have had a general anesthetic, which was unsatisfactory in many cases, even though skilfully given. The fact that chilling during or following an operation often plays a part, cannot be overlooked. That pre-existing pulmonary lesions, either acute or chronic, are often made worse by a general anesthetic is also recognized. I believe that aspiration during general anesthesia has received a little more than its share of the blame. The experimental work of Lemon,¹ and the observations of many anesthetists during oral or pharyngeal operations, shows that practically every patient under general anesthesia aspirates the secretions of the mouth and throat, at least into the trachea, if not into the bronchi. Not all of these patients develop a bronchitis or pneumonia, however, so aspiration of the oral secretions seems insufficient as a cause. Open foci of infection in the mouth at the time of operation is also considered a possible cause of lung infection, by some authors. The aspiration of stomach content, vomited while the patient is still unconscious, surely influences, if

it is not entirely responsible for some postoperative pulmonary disturbances. This is particularly true in patients suffering from an acute dilatation of the stomach, and in cases of intestinal obstruction.

Pasteur² and Briscoe³ believe that collapse of a part of one or both lower lobes is responsible for most of these early complications. Briscoe shows that deflation is a consequence of the prolonged supine position in certain types of individuals, and occurs during sleep as well as anesthesia. Others believe that operations which interfere with the movements of the diaphragm, or cause its temporary fixation, are responsible for the deflated lung.

Whipple⁴ and Cleveland⁵ have found Type IV pneumococcus in the sputum, both before and after operation, in a large majority of patients developing an early postoperative pulmonary complication. They do not find the pneumococcus in those patients who develop a late complication.

Pneumonia is very difficult to produce experimentally by the bronchial route. Some success is reported when massive doses of the infecting agent are used. Blake and Cecil⁶ report successful production of lobar pneumonia, in monkeys, with very small doses of pneumococci, given intratracheally. Lobar pneumonia is not a common occurrence following operation, however, and here on the Pacific Coast it is extremely rare.

The process of venous thrombosis and embolism is well known to all physicians, and most of us are acquainted with sudden death from a pulmonary embolus. There seems to be little doubt that this same process may be responsible for many of the less dangerous pulmonary complications. The term "pulmonary infarction" is commonly given to the late complications. Fetterolf and Fox⁷ have shown that extensive thrombosis of the veins in the neck regularly follows tonsillectomy. Cutler and Hunt⁸ report a series of these late complications, and point out that such complications are most frequent after operations on some part of the body that is freely movable, e. g., abdomen, throat, jaw, groin, and seldom occur following a craniotomy, for example, where the tissues are anatomically splinted. An embolus may be dislodged during the course of an operation, or as late as the third week following operation, but the most frequent time is from the eighth to the twelfth day.

Holman, Chandler, and Cooley⁹ have recently reported a series of lung abscesses, both pyogenic and tuberculous, produced in dogs, after the method first described by Holman.¹⁰ They produced the abscesses by introducing an infected embolus into the circulation through the jugular vein. The course of the pneumonic disease produced in these animals receiving emboli infected with pyogenic organisms is so similar to the late type of postoperative pulmonary complication that an analysis of this experimental work is justified.

Quoting from the experimental report: "The effect of introducing a pyogenic embolus into the venous circulation differs widely in different animals. There may occur only a local consolidation and pneumonitis about the embolus, with early and complete recovery and no permanent pulmonary damage. Hemorrhagic infarction may occur fol-

lowed either by recovery, or by formation of an abscess and then recovery. In other instances abscess formation is followed by death, probably due to a complicating septicemia. There may occur also a massive hemorrhagic consolidation brought on by interference with the circulation of the affected lobe, incident to an extensive thrombosis of the pulmonary artery proximal and distal to the embolus."

In those experimentally produced pulmonary infarcts and abscesses the consolidation was present soon after the embolus was introduced. The fever and leukocytosis gradually increased, and lung abscess developed about six days after the introduction of the embolus. The embolus, introduced with the animal in the supine position, lodged in the left lower lobe fourteen times, right lower lobe eleven times, left upper lobe twice, right upper lobe once, and right middle lobe once.

Thus the clinical features of the results of infected pulmonary embolus in the experimental animals parallel very closely the clinical features of the late postoperative pulmonary complication that I have reported.

Several writers have given several different causes for postoperative massive collapse. Most cases reported have followed general anesthesia, but we know that massive collapse of the lung may follow gun-shot wounds outside of the chest, and it sometimes follows diphtheria. In neither of these latter conditions have the patients been anesthetized. Such conditions as reflex spasm of the bronchioles, fixation of the diaphragm with retraction of the chest wall, and plugging of the bronchi by thick mucus have been given as causes of collapse. Briscoe³ says: "Postoperative massive collapse is produced by the onset of inflammation, affecting the pleura over the diaphragm, or the muscles of the crus situated behind the diaphragm, in an individual in whom the lower lobes are already deflated." On the other hand, Tucker¹¹ demonstrated that bronchial obstruction is caused by tenacious mucus, in cases of massive collapse, and that function is quickly restored to the lung by the bronchoscopic removal of this obstruction.

I do not know that anyone has successfully produced massive collapse in animals.

I do not believe there is any single cause which will account for all the cases of the early inflammatory complications. I think that most cases are caused by a combination of several of the previously mentioned factors. Some of these factors may occasionally act as the sole factor. I believe the majority of the late type are caused by emboli, the severity of the result depending upon the size of the embolus, whether or not it is an infected embolus, and upon the condition of the lung in which it lodges. I do not venture an opinion as to the cause of massive collapse, but the work of Tucker in removing mucus plugs from the bronchi in such cases is very convincing.

How can we prevent these complications? I do not believe that we can ever prevent all of them. Nevertheless there are a good many things we can do which might lessen their frequency. If possible the patient's stomach should be empty before a general anesthetic is given. In cases of gastric reten-

tion or bowel obstruction, gastric lavage should be performed before the patient is asleep, not during the course of the anesthetic.

Pre-existing pulmonary lesions should be carefully searched for, and a patient with any infection of the respiratory tract should not be given a general anesthetic if it can be avoided. The anesthetic should be given with such skill as to maintain even muscular relaxation, preventing the return of the pharyngeal reflexes during the operation, and preventing cyanosis, whenever this is possible. The position of the patient during operation favors a stormy postoperative convalescence in many instances. The use of pillows, sand-bags, and other apparatus is frequently demanded by the surgeon, that he may secure a better exposure of his operative field. The use of such apparatus should be discouraged whenever it will interfere with the movements of the diaphragm or the aeration of the inferior lobes of the lungs. To have the patient in a sitting position during general anesthesia is an almost criminal procedure. The position of choice is a slight Trendelenburg's position. Suction should be used to prevent aspiration during all operations on the mouth and throat. The patient should not be chilled or exposed to cold air during or for several hours after an operation.

The surgeon should not begin his operation before the patient is properly anesthetized. He should be gentle in his manipulations and in handling the tissue. All measures to prevent wound infection should be vigorously enforced to limit the chances of venous thrombosis. Intelligent postoperative care and observation may prevent the dislodging of a thrombus.

Such procedures as I have suggested are not new, but are frequently overlooked or carelessly observed, and they require cooperation between the anesthetist and the surgeon. The more the surgeon knows about the art of giving an anesthetic, and the anesthetist knows about the patient's disease and general physical condition, the more effective will be this cooperation.

CONCLUSIONS

1. Postoperative pulmonary complications are frequent, and they may be severe.
2. Such complications occur after operations under local anesthesia as well as under general anesthesia.
3. There is no single cause of all postoperative pulmonary complications, but the possible causes have been reviewed.
4. The prevention of all postoperative pulmonary complications seems impossible, but measures which might lessen their frequency have been suggested.

490 Post Street.

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THE SUPERVISION OF DIAGNOSTIC LABORATORIES

By WILFRED H. KELLOGG, M. D.
San Francisco

INCREASING attention is being given in different states to the need of some sort of supervision of clinical and public health laboratories. Realization of this need was first appreciated or at least first manifested by official public health agencies. The health department of New York State was the first to inaugurate a system of laboratory control, and California was, I believe, the second in line, with the action of the State Board of Health in 1923 in authorizing the Hygienic Laboratory to initiate a system of voluntary certification.

The need for protection of the people and their physicians and health departments against a low standard of service in this important field is evident to every competent laboratorian and to every physician who is himself sufficiently in touch with laboratory methods to recognize ignorance and charlatanism when it appears in the guise of diagnostic laboratory service; for there are charlatans in diagnostic laboratories as there are in the general field of medicine.

METHODS OF SUPERVISION

The only difference of opinion likely to arise concerning this subject is in the matter of how supervision should be brought about; whether by legislative enactment or by exercise of general powers by some official body having such general powers as the Board of Health, or by a system of voluntary cooperation on the part of the laboratories with some self-appointed central source of control such as the Board of Health, other state commission, or the laboratories themselves. Another alternative would be to leave it to the slow process of natural evolution through growing understanding on the part of physicians and an awakening consciousness of responsibility on the part of the laboratorians. If it were the regulation of the practice of medicine that was being considered it goes without saying that the last method would be generally accepted by nobody but the charlatans themselves. Why physicians should not apply to their laboratory workers the same reasoning regarding the necessity of adequate education and experience that they apply to themselves, is something of a puzzle. It is doubtless to be explained by lack of thought and attention that is given this specialty of medicine by the profession in general. Whatever the explanation, it is a fact that less concern is shown by the average individual physician in routing his specimens to a laboratory and by the average group or hospital in employing a laboratorian than to almost any other type of service they make use of. The influences that determine the physicians' choice are, without question, generally the same that influence patients in selecting their physicians. For some the sign on the door is sufficient or the statement of the applicant for a job that he or she is a bacteriologist, or that he or she is fresh from the laboratory of some "hospital." True, the former job may have been that of dish washer, but this is ordinarily not gone into. Others may be more cautious; they may require the recommendation of someone else no more qualified than

they to decide on the technical qualifications of the seeker after employment or referred business. A few will pursue the course adopted by a very few patients in choosing their physicians; seek the advice of someone who has special knowledge in that particular line. Such things as personal appearance, convincing manner, a line of "patter" suggesting technical knowledge, a pleasing personality, are just as effective in "selling" the laboratorian to the physician as in "selling" the physician to the patient.

TRAINING STANDARDS OF TECHNICIANS

The obvious remedy for such a situation is enlightenment of physicians and others patronizing laboratories or employing laboratory workers to such facts as these:

1. A technician cannot secure competency by working in *any* laboratory for a period of two months or four months or six months.
2. An education in the basic sciences of chemistry, bacteriology, biochemistry and pathology is even more necessary than for the practice of medicine.
3. Experience under competent supervision is necessary even after the best of college courses.
4. The statement of an individual regarding his qualifications or the recommendation of an acquaintance who is not himself a specialist in the laboratory field is not a safe way to decide.
5. The average physician, health officer or hospital executive is not prepared to pass on the qualifications of a laboratorian and, therefore, must have some method of distinguishing the competent from the incompetent.
6. If it were possible to have a thermometer that reversed the temperature readings, a stethoscope that announces rales when there are none, or a pleximeter that gives forth a hollow sound over an area of pulmonary consolidation, the consequences would be serious, but not more so than reliance on the laboratory work of some persons, who find no difficulty in making a living as clinical laboratorians.

When the realization of such facts becomes enough, some form of official control of laboratories or licensing of laboratory workers will be demanded by the medical profession. Perhaps before that time the better laboratories will themselves have initiated the movement. Until that time it seems incumbent on those having a knowledge of the facts and who are at the same time in a position to improve conditions, even in a limited way, to take such action as their judgment dictates.

PRESENT PLAN OF CALIFORNIA CERTIFICATION

In line with this conception of their duty as guardians of the public health, the California State Board of Health initiated in 1923 the existing plan of laboratory certification, and the result has been very gratifying. There are at the present time sixty-one laboratories in the state that have been inspected, approved and have had certificates issued to them.

In the operation of this division of the work, an application for certification is followed by a personal visit to the laboratory by the director of the State Hygienic Laboratory. The applications are made in writing on a special form provided by the department. In this application, questions are answered regarding educational qualifications and experience of the director, the number of employees, the physical equipment of the laboratory, types of work performed, etc. The applicant also agrees to keep careful records of work done, including the pres-

ervation of certain stained slides for a definite period, and to submit to inspection as required. It has not been considered necessary or advisable to require particular methods of examination, but if the method in use is not considered a safe or effective one, approval for that particular examination is withheld, unless an approved method is adopted.

Under the regulations of the board, the director of a laboratory, if not the owner, must have full authority to control the policy of the laboratory, so far as technical matters are concerned. The records that are required to be kept are those pertaining to the examination of specimens, such as results, name of patient, who submitted the specimen, etc. The recording system must also be such that any particular slide can be readily found and connected up with the case. Financial matters, fees for examinations, etc., are not inquired into. Changes affecting the directorship, removal of laboratory to new location, radical changes in technique and discontinuance of tests previously approved must be reported to the director of the Hygienic Laboratory. Certificates are issued to the responsible head of particular laboratories and do not apply to other laboratories even when under the same management.

ULTIMATE SOLUTION OF THE PROBLEM

The writer believes that while the present system of voluntary certification is having a good influence, principally educational, and has resulted in several specific instances in improving local laboratory service materially, the ultimate solution of this problem rests in state regulation of the qualifications of laboratory workers. This is really more important than the insurance of competence in laboratory directors. A technically competent director may not always be a good administrator, and this is something against which no system possible can ever insure. Political influences in municipal laboratories may interfere with the freedom of choice of workers and in private laboratories the necessity of making the business pay, influences the salaries paid and the quality of service received.

The approval of laboratories by the American Medical Association is a step in the right direction, but excellent as it is, and useful as it undoubtedly will become, it is only a step and only applies to commercial laboratories. Like the California plan, its chief advantage will be educational, but it is nation-wide in scope, a distinction that establishes it as a useful institution regardless of any possible development of perfection in state methods.

IN CONCLUSION

We should, in short, have a standardization of the workers, not the institutions. Administratively, the licensing of workers could be placed under the Board of Medical Examiners, the Board of Health or a special board, or under the department of education. Presumably any such board would, even if this were not provided for in the legislative act, employ experts in the various lines of laboratory work to pass on the credentials of applicants for registration. Since the sciences concerned in diagnostic laboratory methods are among the basic medical sciences, it would seem reasonable to regard such laboratories as practicing a specialty of medicine, and

their regulation, therefore, as coming under the supervision of the medical licensing authority. However, the fact that the State Board of Health of California already maintains a laboratory bureau and has already taken cognizance of the situation makes the placing of the licensing of laboratorians under that division of the state government a reasonable plan for California. Such details naturally will be worked out differently in different states; the essential thing is the examination and licensing of individuals rather than institutions. Different classes will, of course, be necessary, covering different kinds of work, knowledge of which is not always combined in the same individual. Cellular pathology, biochemistry, bacteriology, serology, immediately suggest themselves as separate divisions, and applicants would apply for one or more certificates, according to their training and experience.

The problem is up to the medical profession and laboratory directors, and it is inconceivable that opposition can come from any but those having reason to fear the operation of such a measure.

970 Chestnut Street.

ANESTHESIA IN UROLOGIC SURGERY*

By MARY E. BOTSFORD, M. D.

ETHEL RIGHETTI, M. D.

CLARK M. JOHNSON, M. D.

San Francisco

THE choice of anesthetic in urologic surgery is a matter of concern to the internist, surgeon and anesthetist and has been the subject of much discussion and investigation in the past few years. That ether and chloroform inhibit kidney function is a well established fact, explained by Cushny as being due to the reduced blood pressure and impaired aeration of blood.

USE OF MORPHIN AND ATROPIN

The great progress that has been made in the development of local anesthesia makes it the ideal method for the selected patient but for the large proportion of cases, where general anesthesia is necessary, nitrous oxide best meets the requirements of urologic surgery. Unlike ether and chloroform, it has no effect upon blood pressure, other than to cause a rise during secondary saturation when the oxygen percentage is reduced. As nitrous oxide is not eliminated by the kidneys, its obvious advantage has caused it to be the anesthetic of choice in most urological clinics where a general anesthetic is indicated. The question, therefore, of withholding the preliminary morphin, which influences so strongly the course of nitrous oxide anesthesia, becomes a matter of great interest to the anesthetist.

The work done by Haines and Milliken in the Surgical Research Laboratory and the Department of Urology, Graduate School of Medicine, University of Pennsylvania, on the subject of the renal effects of morphin and atropin with ether anesthesia, suggested a comparison with the results under nitrous oxide and oxygen. Seeking in their experiments to obtain a criterion of the operability of pathologic cases, functional tests with intravenous

indigo carmin were made, with and without morphin and atropin both appearance time and elimination being estimated, the latter being measured at three twenty-minute intervals. The results of these tests in six typical cases proved that elimination was slightly better after the injection of morphin and atropin as shown by appearance test and percentage of dye eliminated.

A series of six dogs were injected intravenously with indigo carmin after thirty minutes of deep ether anesthesia, the etherization being then continued. Twenty minutes was the earliest appearance of the dye. The same dogs a week later were given morphin and atropin half an hour before etherization and the appearance time was four and five minutes, which was as soon as in the control cases and normal unanesthetized dogs. They conclude from these experiments that morphin and atropin in the usual hypodermic dose does not affect the kidney function unfavorably and that in dogs it prevents the inhibition produced by ether. Because of the supposed retardation of urinary secretion produced by morphin and atropin, it has been customary to omit it in cystoscopies and ureteral catheterizations under nitrous oxide. This investigation was undertaken to determine whether nitrous oxide anesthetization inhibited kidney function and if so whether morphin and atropin prevented this inhibition, as in the case of ether.

Cystoscopies in adults are usually done under some form of local anesthesia but here again the preliminary morphin would be of great value for the preoperative psychic effect and postoperative relief from pain, if it proves not to interfere with kidney function. Morphin is frequently the determining factor in the possibility of obtaining muscular relaxation under gas anesthesia and if, as Haines and Milliken suggest, it does not interfere with elimination, then urologic operations, which contraindicate ether and where complete muscular relaxation is necessary, such as perineal and supra pubic prostatectomies, nephrectomies and operations on the bladder, as well as cystoscopies and ureteral catheterizations, may be done under nitrous oxide without the addition of ether.

The evaluation of the preoperative use of morphin in general surgery is still a matter of controversy. That anesthesia is immeasurably benefited by its circulatory sedation, muscular relaxation, control of mucus production and the prevention of apapnia, due to psychic effect and slowing of respiration, is generally accepted.

One of the outworn traditions, that of its danger to children, is being gradually discarded. In the Children's Hospital, morphin and atropin, in properly graded dosage, is given almost as routine before tonsillectomies and, covering a period of thirty years, the records show no fatalities. Formerly, two years was the lowest age limit for nitrous oxide, even for induction, with the gas ether sequence, but the increasing number of infants and young children in whom cystoscopies for diagnostic purposes were found necessary, led to the use of gas. Time is an important element in the safety of anesthesia in infants and the difficulty of ureteral catheterization, with the occasional necessity for repetition at short

* Read before the Anesthesiology Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927.

intervals, positively contraindicate the use of ether. Hugh Young, in his recent work, deplors the fact that the diagnostic methods of modern urology are rarely called into use for the benefit of very young children and urges propaganda to prove to clinicians the desirability and simplicity of these methods. No doubt this attitude on the part of urologists is due to a realization of the dangers of ether and chloroform and the impracticability of local anesthesia in this class of patients with a lack of knowledge of the advantages and safety of nitrous oxide anesthesia.

ANESTHESIA IN SEVENTY-SIX CHILDREN

A review of seventy-six cystoscopies on female patients done at the Children's Hospital, San Francisco, showed the following results:

Ages 5 months to 72 years.
Five cases under 1 year.
Seven cases between 1 and 4 years.
Ten cases between 4 and 10 years.

Sixty-three patients were given nitrous oxide and oxygen, ten of these having varying amounts of ether in addition and five straight ether with gas induction, five being done under local anesthesia.

The functional kidney tests with indigo carmin or phenosulphonephthalein made in these cases for diagnostic purposes unfortunately have no significance in this inquiry as there is no opportunity for comparison. The records, however, of voluntary micturition following anesthesia show some interesting results.

One patient, aged 5 months, who was cystoscoped four times under nitrous oxide and oxygen for periods of twenty-five minutes to one hour, twenty minutes, voided one to two and a half hours later.

Another, 5 months old, forty minutes under nitrous oxide, voided three hours later.

A six-months-old case, nitrous oxide and oxygen for one hour, five minutes, who was given 1/700 gr. atropin, voided four hours after anesthesia and a week later after forty-five minutes of gas without atropin, in three and a half hours.

A patient of 32—nitrous oxide and oxygen for thirty minutes, given M. S. gr. 1/6 without atropin preoperatively and again ten minutes after anesthesia, voided in two hours.

One, eighteen-year-old, given M. S. gr. 1/4 and atropin 1/150, preliminary to forty minutes of nitrous oxide, voided in one hour.

A resumé of the times of voluntary micturition shows a noticeable retardation in the cases where ether was used, a slight one with atropin and none with morphin alone.

Observation of two cases in which the phenosulphonephthalein functional test of 1 cc. intramuscular injection was made, gave these results:

Adult—Cystoscopy and ureteral catheterization under nitrous oxide and oxygen; fifty minutes. Appearance test made at end of anesthesia, ten minutes, and a week later with no anesthetic the appearance time was the same.

Three-year-old girl—Cystoscopy and ureteral catheterization; nitrous oxide and oxygen, fifty

minutes, appearance test made at end of anesthesia; twelve and a half minutes and without anesthesia twelve and a quarter minutes. No morphin or atropin was given in these cases.

The cases are too few to justify any conclusions being drawn, but the results would seem to show that nitrous oxide causes no appreciable inhibition of kidney function. The effect of morphin is somewhat contradictory, two of the cases show a retardation and one an acceleration of the appearance time.

EXPERIMENTS IN DOGS

In the Hooper Research Department of the University of California the work of Haines and Milliken was duplicated on a series of dogs, using nitrous oxide anesthesia instead of ether.

The dogs of approximately the same weight were injected intravenously with 1 cc. of phenosulphonephthalein without anesthesia and the appearance time noted. Two days later the test was repeated under nitrous oxide anesthesia, and after the same interval a third test was made under nitrous oxide anesthesia preceded by morphin gr. 1/4 and atropin Gr. 1/600, given ten minutes before anesthetization, with the following results:

	I Male puppy	II Male fox terrier	III Female tan dog
1 cc. phenosulphone-phthalein intravenously	4 min.	4 min.	8½ min.
1 cc. phenosulphone-phthalein intravenously	6 min.	3 min.	7 min.
Length of anesthesia			
N ₂ O and O.....	36 min.	13 min.	17 min.
Morphin gr. 1/4; atropin gr. 1/600; phenosulphone-phthalein intravenously			
Length of anesthesia			
N ₂ O and O.....	28 min.	22 min.	18 min.

Hypodermic of morphin and atropin given ten minutes before anesthetizing the animals.

Animals anesthetized for ten minutes or more before injecting the dye.

Further research is needed to establish the action of morphin on renal function.

807 Francisco Street.

Autogenous Vaccine—Deadly Snakes Now Conquered by Science is the title of an interesting article in the *Science News Letter* for June 4 by Raymond L. Ditmars, curator of reptiles at the New York Zoological Park. Doctor Ditmars recently sailed for Algiers, to see there, according to reports in the New York papers, for a second time a native snake charmer who permits the deadly cobra to bite his nose. Doctor Ditmars is reported to have stated that he believes this Algerian snake charmer immunized himself in early youth and so became permanently impervious to snake bites. In an interview published in a recent issue of the New York *Herald Tribune* Doctor Ditmars is reported as having revealed that at least one American, Colonel M. L. Crimmins, U. S. A., retired, has immunized himself against rattlesnake bites. This has been done so successfully that he has used his own blood as a serum when other persons in Texas were bitten, and the emergency of regular serum had run out. The remedy was effective and scientists are studying the circumstances closely.—*M. J. and Record.*

When the baby is SIX MONTHS OLD have your DOCTOR give TOXIN-ANTITOXIN to PREVENT DIPHTHERIA.—United States Public Health Service.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects and discussants invited.

POLIOMYELITIS

Bert Thomas, Sacramento—My remarks on this round-table discussion will accentuate only one point in treatment—immobilization. By this I refer not to the haphazard pillow-splint or partial, short-time rest. On the contrary, my dictum is immediate plaster. Complete rest under plaster should be continued for at least one month following the onset of paresis. Then start gentle surface massage; if there is any pain connected with this maneuver discontinue it immediately and return to strict plaster rest until no pain is produced by such treatment.

In the flare-up of 1925 it was my privilege to have contact with eleven cases, six of which were under my immediate care. Urotropin, phenacetin, heat, supporting fluids, and immobilization were all employed, but I feel that the satisfactory results were due to the use of plaster alone.

Before one may satisfactorily follow through with the supervision of his patient the routine suggested, he must thoroughly explain the reasons for it, and so gain the complete confidence of the family. The most difficult point to overcome will be the one so often encountered in the treatment of head injuries: "Why don't you do something?" Bring home the fact daily that any positive action applied to the parts affected will be detrimental rather than beneficial to them.

* * *

Fred B. Clarke, Long Beach—One feature of this disease not sufficiently well appreciated is the fact that it is a general systemic disease. The involvement of the lymph nodes, spleen and gall bladder, the short perivascular infiltration in the viscera and other findings point to its general character. It is only in the exceptional case that the virus gains access to the cerebral spinal system, giving rise to those symptoms upon which we usually base a diagnosis.

The symptoms due to the general systemic involvement, such as anorexia, lassitude and headache, culminating usually in vomiting, are the same that may occur with any generalized infection, and unless an epidemic is present they are not given very serious consideration. Frequently a more careful investigation will reveal muscular tenderness of the extremities and neck, with disturbance of the reflexes, indicating involvement of the cerebrospinal system; aids in arriving at a diagnosis in the preparalytic stage, which are of the greatest importance.

One early symptom which is of undoubted value, the irritability shown by the child when examined, is out of all proportion to what one would expect, considering the degree of lassitude ordinarily present. This irritability of the child,

combined with the tenderness of extremities upon movement, with stiffness of the neck, justify a lumbar puncture, which is of great help, but will not always differentiate from lethargic encephalitis. However, the colloidal benzoin test helps very decidedly in differentiation.

A diagnosis in the preparalytic stage is of great value because of the very excellent results from the use of convalescent serum which is given both intraspinally and intravenously. The number of cases so far treated is not sufficient to enable a definite estimation of the value of the serum. The results in the New Zealand epidemic and in the Detroit epidemic have shown it to be of value. Rosenow's serum has also shown, as reported by several observers, very excellent results. In the Detroit epidemic convalescent serum and Rosenow's serum were both used with good results. It should be borne in mind that the convalescent serum or Rosenow's serum, used after paralysis occurs, do have value in some cases, even late in the disease.

After the onset of paralysis, which usually occurs between the second and fourth day, if it occurs at all, the most important consideration is to protect the damaged muscle group by proper splinting. Often the paralysis is made much worse by improper splinting. To encourage the child frequently to demonstrate to relatives and friends just how fast improvement is taking place is absolutely contraindicated.

Demands frequently are made for the early use of massage and electricity by relatives and friends of the patient, and this is at times very hard to combat. Unless used by an expert they are productive of a great deal of harm. I do not believe that the general practitioner or general surgeon should attempt the after care of these cases. Patients should be placed under the care of the best orthopedic surgeon available if they are to have the best treatment for functional recovery.

* * *

A. G. Bower, Glendale—Since Underwood gave the first description of poliomyelitis in 1787, we have traveled a long way in our understanding, diagnosis, and treatment of the disease, but unfortunately there yet remain wide gaps in our knowledge of this justly feared disease. Some authors of wide clinical experience believe that with our present knowledge we remain unable to diagnose as high as 70 per cent of these cases, inasmuch as we only recognize the disease as a distinct entity in those cases which give signs of involvement of the central nervous system, and these will probably rarely exceed 40 per cent. Under such conditions we are all probably calling

the majority of the cases we see by some other name, such as la grippe, tonsillitis, "teething," etc. Until such time as more accurate methods of diagnosis can be devised we shall probably not advance very far in our prevention of epidemics of the disease, for these undiagnosed cases undoubtedly present a tremendous factor in spreading the infection, especially in time of epidemic.

It would not seem wise to enter into the controversy concerning the etiological factor of the disease. Rosenow claims to have isolated a specific streptococcus as the cause; Noguchi and Flexner a "globoid" body, which exists in a filtrable virus form, and which looks like a streptococcus in that form capable of microscopic visualization. It may yet be possible that both views are correct.¹ Rosenow claims to have devised a skin test with the toxin of his streptococcus which is strongly positive in infected persons during the acute stage and negative in convalescents.² He further states that he has devised a highly diagnostic precipitin test made with material obtained from the nasal cavities of positive carriers and immune horse serum.

³ It is of interest that in 1926 a milk-borne epidemic was described that apparently was caused by contamination of the milk through contact with a milker who later contracted the disease. This method of spread is probably highly unusual, but it adds another link to our knowledge of the mode of transmission.

Intravenous and intramuscular injections of convalescent serum (or whole blood in some instances) is coming in for much favorable comment. In our few trials it has proven disappointing. Intraspinal serum injection we have also found disappointing and it is receiving very little favorable comment among clinical authors. Levick⁴ reports some rather unusual results in old apparently hopelessly paralytic cases by the intelligent use of a special physiotherapeutic technique that he has devised which includes quartz light, red light, galvanic stimulation, muscle re-education, etc. We concur strongly in what our colleagues have stated regarding early immobilization of paralyzed muscles in the acute cases.

* * *

Harold K. Faber, San Francisco—I should like to re-emphasize two points which are of particular importance now that we stand in the presence of an epidemic: the probable mode of spread of the disease, and convalescent serum.

The practitioner should keep in mind that in the vast majority of cases the disease is spread by contact either with a healthy carrier or with a patient in the early stages of the paralytic form or with the so-called abortive form. The symptoms in either case, while unrecognizable as poliomyelitis, are sufficiently suggestive to be viewed with suspicion and to be used as a basis for preventive measures. The symptoms to be watched for are those of a nasopharyngitis or bronchitis with fever, headache and other aches and pains,

particularly of the back, the whole picture simulating influenza in many respects; or of a gastroenteritis with vomiting and diarrhea. The public should be advised to avoid close proximity with people having symptoms of a cold and should keep out of crowds and assemblies as far as possible. For various reasons it is unwise to close the schools, but children with the symptoms above should not be allowed to go to school, and nurses and teachers should be particularly vigilant in their daily inspections. It is probable that infection is less often acquired by the inhalation of droplets than by direct transference of the virus from the hands to nose and mouth. Education of the public to avoid touching the nose, mouth or face; to wash the hands frequently, especially before meals, and to change handkerchiefs oftener would be of the greatest possible service.

Convalescent serum is the only proved specific means of treatment. That it can neutralize the virus of poliomyelitis is known, and the clinical proof of its therapeutic value rests on controlled observations. Proof of the value of Rosenow's serum does not appear to be equally convincing. Convalescent serum offers a fair chance of preventing or lessening permanent paralysis if it is given at the very onset of the symptoms indicating involvement of the central nervous system, and may be of some value within the next forty-eight hours. Shaw and Fleischner have shown that whole blood from a convalescent, given intramuscularly, has at least equal value. *Every physician who has a patient convalescent from poliomyelitis should make an earnest effort to obtain serum from that patient and should place it at the service of the medical profession at large.*

Various hospitals, the medical schools, and the State Board of Health are prepared to cooperate with him in obtaining, preparing and storing the serum. Unfortunately great difficulty has been experienced in obtaining it, and stocks of the serum are now very low. Physicians should regard their assistance in this matter not only as a matter of public duty, but as of vital importance to themselves in the proper handling of the cases which they are likely to be called upon to treat at any time. Because of the advantages of pooled serum, which has been properly tested bacteriologically and serologically (Wassermann test), it is preferable to have it collected at a few adequately equipped centers. Blood may be withdrawn as soon as three weeks after the subsidence of fever. The highest concentration of antibodies is during the first few months after the attack, but there is reason to suppose that they may be present in lower concentrations for some years.

Immunization of Medical Attendants—While every precaution is exercised to minimize the danger of exposure, still the occurrence of three cases of diphtheria among the nurses suggests very strongly a remedy that should be inaugurated at once. Every pupil nurse should be given the diphtheria toxin-antitoxin inoculations during her period of training so as to immunize her against the disease. Incidentally, it may not be amiss to direct attention to the need of vaccinating every nurse or attendant in hospitals against smallpox.—New York Department of Health Weekly Bulletin.

1. Rosenow, E. C.: Jour. Inf. Diseases, 38, 529, 1926.

2. Rosenow, E. C.: Jour. Inf. Diseases, 38, 532, 1926.

3. Knapp, A. C.; Godfrey, E. S.; Aycock, W. L.: J. A. M. A., 87:635, August 28, 1926.

4. Levick, Murray: Lancet, 2:323, August 15, 1925.

As a matter of fact it does not and never has made any such pretension; and its owners, the members of the California Medical Association, at no time have ever had such a major aspiration for it. While it is true that CALIFORNIA AND WESTERN MEDICINE whole-heartedly subscribes to, and enthusiastically supports all medical literature produced by California physicians which measures up to the highest standards of literary and scientific excellence, and hopes that an increasing number of articles of such type will appear between its covers, it recognizes that the production and publication of such super-excellent papers by California physicians is something over and above and beyond itself. While CALIFORNIA AND WESTERN MEDICINE gladly lends its encouragement to all who produce or seek to produce such theses, at the same time it must carry on with such studies and papers as are actually brought forth by the members of the C. M. A. Of their work, it feels that the members of the California Medical Association need not make undue apology. Whatever that work may be, and to what greater or lesser height of standards the papers through which the studies are presented, could or should measure, it may be assumed that, inasmuch as these contributions are largely the discourses which are presented at the annual and other meetings of the California Medical Association and the component county societies, that

they are a fair reflection or average of the scientific tone and literary standards of the California profession at the time of such presentation and publication.

And if these papers be not, then the reflection and criticism should not be upon either those colleagues who contribute to the sessions, or on the state journal which prints them; but on such colleagues who, possessing knowledge and literary ability able to produce better discourses and papers, nevertheless fall short of their obligations to organized medicine, and particularly to the California Medical Association, by not taking a more active part in the proceedings of its own and the county society meetings.

* * *

Therefore, one of the major functions of a state medical journal is to present the output of the members of the state association and its component county societies; to the end that the formal opinions and carefully considered viewpoints of the essayists who contribute messages to these organizations, in California, for instance, may be made more readily available to the more than five thousand subscribers to this journal.

But in equal and perhaps in even more important manner, it is the function of CALIFORNIA AND WESTERN MEDICINE to act as a medium of interchange of opinion on matters of economic, fraternal and other professional interest. For in our devotion to the standards of either abstract or applied medical science, let none of us waft ourselves away in an aura of self-satisfaction or complacency, that through such devotion, our economic, legal and other interests may be left to care for themselves. Such is not the case, for we live in a day when the strife is to the quick, and they who count on the goodness, generosity, and appreciation or altruistic thought from either lay fellows, or at times, even of physician fellows, may have opportunity to repent of such philosophical abstraction, when rights and privileges which should be an inherent part of so noble a profession as that of the healing art, are insidiously or forcibly taken from it.

These thoughts are penned because there be among us, some, who at times seem not to sense quite fully the need of an organized profession, and who seem to forget that through just such an organized profession they themselves flourish more than would otherwise be the case. There be few busy physicians who do not profit from their affiliations with fellows, who send patients for consultation, and who in return ask nothing but that good service be rendered the patients so sent. Nevertheless there is an obligation involved in this; and that has to do with the fact that the prominent and able consultant shall reciprocate for this confidence in him, by placing himself in full communion with his fellows at their annual sessions, and by giving of his very best to these colleagues, upon whose good-will and cooperation

his own success is often so very largely founded. The greater the knowledge and ability of any one of us in our guild, just that much greater should be our obligation to share of the same with our fellows.

* * *

To make the pages of CALIFORNIA AND WESTERN MEDICINE replete with messages coming from thinking and observing members of the profession, from one end of this great state to the other; to have the topics discussed be of wide range and of such character as to be provocative of keen thought by all readers, and to old and young members of the profession alike, to be an inspiration, to keep themselves alert and in step with the progress of scientific medicine; to present to the members of the Association the problems confronting the physicians of today, and the manner in which the officers of the state and county societies are striving to solve these problems for the advancement of the profession and the protection of the interests of its members; to serve as a medium of fraternal interchange of opinion among the members on all matters directly or indirectly concerned with the work of physicians—these are some of the objects which the Council of the California Medical Association and its delegated editorial representatives keep constantly in mind.

* * *

These objects as here briefly presented would seem to be an ample sufficiency and very adequate and proper reasons, why CALIFORNIA AND WESTERN MEDICINE has a right to exist and have a place in the sun. And through the whole-hearted and loyal support of a host of able colleagues and coworkers this journal as time goes on should give increasing reasons for its continuance.

Its founder, the late Philip Mills Jones, when our journal was in its baby clothes, made a name for it through its espousal of the principle that all high-grade medical journals should expunge from the advertising pages, all undesirable announcements; the editor and Council hesitating not to give valiant and effective battle to the journal of the national association at that time, until that important issue was properly and decently settled.

His successors, and especially its recent editor, the late William Everett Musgrave, carried it forward in increasing worth and capacity. With its honorable past, and the support of so outstanding a profession as exists in California, CALIFORNIA AND WESTERN MEDICINE cannot do otherwise than to continue to progress and be an increasing influence for effective service not only to its members, but to the citizens of our own great state and the adjacent commonwealths. The cooperation and support of every member of the California, Utah, and Nevada Medical Associations are desired in order to accomplish these good ends.

THE COLLECTION OF FEES

The great majority of physicians must depend upon the fees which they collect to house and clothe themselves and their families, to educate their children, and to put aside a something for the probable stormy day of tomorrow or of advancing years.

In the days of not so very long ago, when the physician was less of a specialist and much more often an intimate part of many family groups, to the members of which he had rendered services to bring out varying expressions of gratitude and material appreciation; and when the exigencies of modern-day living were not quite of so cold-blooded a money character as today, it may not have mattered greatly whether a goodly number of patients paid, what were little more than small installments on the worth of professional services rendered.

But today, with the increasing complexity and specialization of trades, businesses and professions, and the newer methods of doing business in both urban and rural communities, the doctor who does not collect a goodly proportion of the fees he has earned, is more than apt to be faced with a column in the red; and no man can do justice to himself in his profession and give expression to his best work and capacity under such a handicap.

Physicians vary greatly in their financial attitude and relationship to patients. There be some doctors, who smilingly and graciously and seemingly with a minimum of effort, can secure a large proportion of the fees due them from patients. There be others who put their business relationships on the same basis and procedures which are in vogue in the lay business world, and who seem to be successful with that plan. But a goodly number, if not a majority, still send out statements and make their collections on much the same plan as their predecessors, hoping that a sufficient number of patients will send in their checks or make payments to keep the ledger showing no red when the balances for the month or year are computed.

The geographical, social and economic environments of patient groups, the character of general or special medical practice engaged in by the physician, the financial customs of the colleagues of the community, all these are factors to be reckoned with in this matter of collecting fees for services rendered; and last but not least is the individual physician himself, his own likes and dislikes in these matters, and his financial aspirations or needs.

These comments are made because in the Medical Economics column of this issue is printed a series of stickers or follow-up notices which could be enclosed with statements to patients whose remittances for services rendered, are past due. These notices were devised years ago for the members of the Los Angeles County Medical Association. There was a twofold purpose in their creation: one, to have each notice be a spur to the collection of the money due and yet be

not of an antagonistic nature; and two, to lead up to the point where the account would go to a collector so that such a patient would not be the recipient of future services. These notices are almost self-explanatory and can be modified to suit local conditions or personal preferences. The fact that many members of the profession, especially younger members, are oftentimes in a quandary on how to proceed in such matters made it seem permissible to print and call attention to this system which has borne the test of trial; and which an office secretary can carry out in quite impersonal routine with a minimum of fret and worry to the physician. A system which creates a minimum of antagonism among delinquent patients, but which is as effective in its results as the almost brow-beating methods of some mercenary collection agencies which proceed in their collections with an abruptness that makes enemies for a physician where friendship and gratitude should exist; and a system which nevertheless eliminates the undesirable patients, may be thought worthy of trial by some of the colleagues who have been in doubt on what procedures to adopt in this important business of fee collection. That is why these slips are printed in this issue. Each physician who reads the method of procedure can determine whether or not there is any part of it which he himself might wish to adopt.

THE 1926 INTERNATIONAL PUBLIC HEALTH WORK OF THE ROCKEFELLER FOUNDATION

In the News column of the Miscellany Department of this number of CALIFORNIA AND WESTERN MEDICINE is printed the foreword paragraphs of President Vincent's report of the work carried on by the Rockefeller Foundation in the year 1926. The stupendous sum of practically ten millions of dollars was paid out during the year in the promotion of international public health projects. The paragraphs referred to should be read by every physician who would wish himself to have somewhat of an orientation of how so large a sum of money from private sources could be advantageously expended in public health work.

It is a magnificent record which is recorded by President Vincent and one in which every American may take pride, for it is American money and leadership that are responsible for this monumental achievement. Diversified as the twenty major fields of endeavor which were enumerated are, and creditable and deserving as those very projects may be, it is even more wonderful as one reads and reflects on the splendid methods of approach and cooperation which the Foundation has laid down as its policy in dealing with universities and with government agencies.

The distribution of the great wealth amassed by captains of industry throughout the world, and especially in our own country, is still a favorite topic of discussion, especially by the non-possessor onlookers. Whatever criticism may be at-

tached to certain forms of philanthropic and altruistic expression which are sponsored by some of these wealthy industry captains, only an academic type of criticism could come into play, when the work of the Rockefeller Foundation is judged. The bigness of the vision of its administrators, the vast and important scope of their endeavors, their lack of provincialism as shown in the generosity of their approach to the problems of peoples of different lands, these are an unusual combination, and reflect great credit not only on the Rockefellers for the munificent giving of their great wealth, but also on their wisdom and farsightedness in their selection of the prominent Americans who make up the governing board of the Foundation.

If more of the great wealth which it has been the good fortune of so many fortunate fellow-citizens to accumulate could be expended through institutions like the Rockefeller Foundation, which is doing work so intimately associated with, and so far-reaching in its beneficent effects upon the human race, then much of the sting and drawback of superwealth by the few, at the expense of the many, would be taken away. As physicians we should be proud that this Rockefeller Foundation is playing so leading a part in the advancement of public health and medical work throughout the world. To Californians it should also be a matter of state pride that Dr. George E. Vincent, president of the Rockefeller Foundation, is a Californian by adoption, making his home in Santa Barbara.

WHO SHALL RATE CLINICAL LABORATORIES

Dr. Wilfred H. Kellogg raises this important question in an article in this issue.

It is well known, of course, that the Council on Medical Education and Hospitals of the A. M. A., as well as the American College of Surgeons, American Hospital Association, and other medical organizations, have been working toward a solution of this problem for several years. The central idea of all of these groups consists in setting standards and requiring laboratories to meet these standards or go unapproved.

The standards established by the A. M. A. were published in the Journal A. M. A., April 3, 1926, and a list of approved laboratories is published annually.

The movement is in all essentials similar to that employed for so many years in hospital work, and promises by purely moral influence to assure doctors and the general public reliable laboratory services. All medical organizations interpret clinical and diagnostic laboratory work as the practice of medicine.

Physicians are likely to oppose placing the control of this branch of medicine in the hands of any government bureau, however competent it may be; particularly those hundreds of excellent clinical laboratories operated by physicians.

The work of competent public health bodies requires laboratory work and no one will object to their operating their own laboratories to serve their

own purposes, but it is extremely doubtful if the cause of health will be constructively served by extending this work to a regulation of other laboratories in doctors' offices, hospitals and elsewhere.

The point at issue is whether laboratories, like hospitals, shall be constructively promoted by the effective moral forces now active, or whether another law shall be passed placing control of this work in a government bureau.

The American Association for the Study of the Feeble-Minded—The fifty-first annual session of the American Association for the study of the Feeble-Minded was held at Cincinnati on June 4, 5, and 6, thus following the meetings of the American Psychiatric Association and allied societies.

Dr. B. W. Baker, in his presidential address, pointed out that, as a result of the public being fully informed as to disorders like cancer and tuberculosis financial and other support for study and research was forthcoming, and stressed the necessity of disseminating knowledge as to the problems of the feeble-minded so that similar interest and support might be aroused in this field. In referring to the attempts being made to tackle the problems of the feeble-minded, Doctor Baker made reference to the value of sterilization and appealed for careful study of the cases so treated. It seemed that a tendency to adopt this procedure by the various states was progressive, and in view of a recent decision of the court's upholding the measure as constitutional, it was probable that more widespread application would take place in the near future.

In the section of Social Service as applied to mental deficiency, an interesting paper entitled "A Study in Mental Deficiency in a Canadian Province" was read on behalf of Dr. C. M. Hincks of Toronto. . . .

This paper aroused an interesting discussion which was carried on in conjunction with one read by Dr. Butler of Eldridge, California, on behalf of Dr. Paul Popenoe, entitled "Success on Parole after Sterilization." There would seem to be little doubt in most circles in California as to the successful results achieved by sterilization of the feeble-minded. It was stated that 75 per cent of the sterilizations (under legal process) performed in the United States have been done in California, and that over 5000 cases have been sterilized there (this figure includes both insane and feeble-minded); not a single appeal has yet been made. Doctor Butler discussed the results in cases placed on parole, and especially those cases who, but for sterilization, would have been maintained under continuous institutional care. As a result of this latter group being paroled a saving of \$220,000 had been effected in one institution over a period of two years.—*Canadian M. A. J.*

One important phase of the treatment of early syphilis is the prenatal care of infected mothers and the treatment of new-born infants. This was work in which the late Professor Fordyce was deeply interested, and he developed at the Vanderbilt Clinic, in connection with the Sloane Hospital for Women, one of the first clinics where this work was consistently carried out and where its effectiveness was demonstrated. It is now the practice in many obstetrical hospitals to perform routine Wassermann tests on all expectant mothers. Many are found to be infected, though they have never shown symptoms of the disease. We now feel rather confident that if these mothers can begin treatment in not later than the fourth month of pregnancy they will give birth to normal children. These children, without receiving any treatment themselves and without especial care, grow up with no evidence of syphilitic infection. We always test such children, of course, and try to follow them up, but it is the rare exception to find them infected.—Joseph Gardner Hopkins, Proceedings of the Twelfth Annual Conference of the National Committee for the Prevention of Blindness.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing editors.

Dermatology and Syphilology

Don't's for Dermatologic Therapeutics—

1. Do not overestimate the importance of the systemic treatment at the expense of the local, or vice versa. The best results in the majority of cases are obtained by the combination of both.

2. Do not use stock prescriptions routinely; modify and grade the strength of drugs according to the requirements of an individual case.

3. Do not use powders or ointments in weeping eruptions. Oily and liquid applications are much more comfortable and effective.

4. Do not give dietetic advice to the patient in generalities; be specific and explicit.

5. Do not give bromides or opiates for the relief of itching; at the best they give only a partial and transient relief and aggravate the itching afterward.

6. Never give irritating drugs in a high concentration at the start, begin with a weak solution and increase the strength gradually.

7. Do not use vaseline as a base for ointments on the glabrous skin; it is too soft and will melt in warm weather. On the other hand, do not use lanoline or Lassar paste on the hairy parts; it is messy and hard to clean.

8. Do not use pine tar in infantile eczemas. Crude coal tar is much less irritating.

9. Do not forget that skin is a highly individualistic organ and that the tolerance of individual skins to various drugs varies tremendously.

10. Do not use tincture of iodine in ringworm of the scalp or impetigo. On repeated application it will only blister the skin and open new channels for pyogenic infection.

11. Do not give iodides in early syphilis nor salvarsan in late; reverse the procedure and add mercury or bismuth.

12. Do not forget the basic dermatologic therapeutic principle. In acute conditions use soothing and cooling applications, in chronic use stimulating and absorbent.

13. Do not use resorcin on a blonde scalp; it may turn it green.

14. Do not use 10 per cent mercury ammoniate ointment in impetigo; it may irritate some skins and aggravate the condition. Two to five per cent ointment is much safer and just as effective.

15. Do not use surgical gauze as a dressing in weeping skin eruptions; it sticks to the raw surface, makes it bleed, and irritates on separation. Old washed linen and muslin are infinitely better.

16. Do not use Whitfield ointment routinely in every case of ringworm; it may be too strong for acute cases and too weak for some chronic cases.

17. Do not regard arsenic as a panacea in skin diseases. It is contraindicated in acute inflammatory dermatoses; its use should be limited to a definite

group of chronic dermatoses, such as psoriasis, lichen planus, dermatitis herpetiformis, etc.

18. Do not allow the patient to refill, at his discretion, the arsenic prescription. Remember that the prolonged use of arsenic may produce pigmentation, keratoses, exfoliating dermatitis, etc.

19. Do not use phenol as an antipruritic in acute inflammatory dermatoses. Anaesthesin 2 to 4 per cent is at least as effective, and is much safer.

20. Do not use sulphurs and tar indiscriminately one for another. Sulphur excels in affections involving the sebaceous follicles, and is a drug of choice in acne and seborrhea. Tar is particularly effective in promoting the absorption of the skin infiltrates in chronic eczemas, lichen planus, etc.

21. Do not use strong acids such as nitric acids for the removal of warts on the face, neck, and other locations with tender skin. Many ugly scars have been produced by it. Fulguration or x-ray are much superior.

22. Do not use carbonic dioxide snow in lupus erythematosus; it may produce deeper scars than the disease itself might produce through a spontaneous involution.

23. Do not use repeatedly mild cauterizing agents, such as silver nitrate or copper sulphate, on moles and growths of an undetermined nature. You may start or stimulate latent malignancy.

24. Do not give strong erythema doses, much less blistering doses of ultra-violet light in highly inflammatory dermatoses, such as acute eczemas, staphylogenes sycosis, or even acute psoriasis. Moderate doses will give you better results.

25. Do not give large doses of x-ray in inflammatory superficial dermatoses, such as chronic eczemas, psoriasis, etc. Smaller doses of one-eighth to one-fourth of a skin unit are sufficient in the overwhelming majority of cases.

MOSES SCHOLTZ,
Los Angeles.

Pediatrics

Diphtheria Immunization—Mr. Doctor: Are your own children immunized against diphtheria? It seems almost incredible that in this period of modern-day medicine, when prophylaxis is the keynote, there should exist a large number of medical men who have failed to take advantage of one of the greatest advances in preventive medicine.

It is indeed difficult to believe that at a time when pediatricians, health officers, social service workers, life insurance companies, and even the biological laboratories are shouting the merits of toxin-antitoxin from the house-tops; when medical journals are replete with undisputed proof of its value in preventing diphtheria there can exist one single

doctor who is not cognizant of its value. And yet within the past few months I have been called to treat diphtheria in the families of two doctors, and have learned from a score or more of others that they have neglected to use or had failed to appreciate the value of this magnificent agent which is now at our command for the prevention of diphtheria.

Now, Mr. Doctor, if you are one of the derelicts, get busy at once and immunize your children and the children of your patients.

OSCAR REISS,
Los Angeles.

Neurosurgery

Palliative Neurosurgical Methods—As custodians of the public health physicians have a threefold responsibility, namely, the prevention and the cure of disease and, thirdly, the relief of suffering. Our attention and interests as regards prophylactic and curative measures should not overshadow the problem of those suffering from incurable maladies. Only too frequently when the decision has been made that specific therapeutic measures are not indicated we lose interest in the case although our sympathy for the patient may be great. Nothing is more trying than the care of a patient with an incurable disease who suffers great pain. Frequently these patients live a long time, and any measure that will make their last days more comfortable is a welcome addition to our therapeutic armamentarium.

Pain is the chief cause of discomfort. Morphine and the other narcotics are resorted to in order that the patient may be fairly comfortable. Surely no one can criticize the use of narcotics in such cases, but unfortunately the patient is frequently in a worse physical and mental state because of their use. The narcotic habit should be avoided if possible in any patient who is not entirely incapacitated because of disease, or one whose expectancy of life is longer than six months.

Primary malignant tumors or their metastases are a common cause of severe pain. The following surgical measures have proved efficacious for the relief of pain.

Tumors of the face, sinuses, or neck frequently involve branches of the cervical or cranial nerves. If the pain is confined to the face and head, resection of the sensory root of the gasserian ganglion will give relief. The operation is the one done so successfully for the relief of tic douloureux. Temple Fay has reported several cases of carcinoma of the face and neck in which relief of pain was obtained by a cervical rhizotomy. In some few cases the combined operation of avulsion of the gasserian sensory root and cervical rhizotomy are necessary if the lesion and pain are widespread.

Malignant growths of the pelvic contents and metastatic growths to the vertebral column frequently cause severe and intractable pain. If the patient has a paralysis of both legs, injection of alcohol into or section of the cord above the lesion may be considered. In those cases where the motor disability is absent or slight, section of the antero-

lateral columns of the cord is recommended. This operation, so-called cordotomy, has been used sufficiently to establish its definite worth. It has also been used in cases of severe pain of the abdomen or lower extremities due to lues and other nonmalignant disease when the pain cannot be controlled by specific therapy. Max Peet in a recent article reviews the history of this operative procedure, and published nineteen cases of his own. The series includes three cases of primary malignancy of the spine, three of tabes dorsalis, two of myelitis, two of carcinoma of the rectum, one of carcinoma of the cecum, one of carcinoma of the uterus, one carcinoma of the breast, one sarcoma of the thigh, and one shell wound of the sciatic nerve in the pelvis. Most of the malignant cases had metastases of the spine or involvement of the pelvic glands with pressure on the lumbosacral plexus. A satisfactory relief of pain was obtained in fourteen cases and partial relief in five.

These operations are not shocking ones, but should be reserved for patients in fairly good condition whose expectancy of life is at least several months.

HOWARD W. FLEMING,
San Francisco.

Urology

Bladder Neck Contracture—Bladder neck contracture or median bar formation at the bladder neck was first elaborated upon by Young in 1911.¹ This is a condition in which there is obstruction to urinary outflow at the bladder neck, due to a fibrous condition of the prostate causing either a ring contracture of the entire bladder neck, or encroachment upon the bladder neck at some point, usually posteriorly. When this occurs posteriorly it is spoken of as a median bar, and is due to a fibrous enlargement of the middle lobe of the prostate causing obstruction by its projection into the internal urethral orifice.

In his excellent work on urology, published late in 1926, Hugh Young¹ discussed this condition in detail. The symptoms of which the patients complain, named in order of their frequency of occurrence are: (1) frequency of urination; (2) pain located in (a) urethra, (b) bladder neck, (c) end of penis, (d) perineum, or (e) suprapubic; (3) difficulty of urination; (4) small stream; (5) weak force; (6) urgency; (7) occasional complete retention; (8) incontinence; (9) sudden stoppage; (10) complete retention; and (11) urination incomplete.

The residual urine found is as a rule less than that found in cases of prostatic hypertrophy, the average being from 25 to 50 cc. There may be no residual urine, or there may be as high as 1000 cc.

By rectal palpation the prostate varies from a small, atrophic condition to an enlargement which could be mistaken for an adenomatous hypertrophy. The diagnosis is made mainly by cystoscopic examination. The cystoscope, after being introduced, is held firmly, as in a vise, at the bladder neck. The thickened bladder neck can be palpated between the

1. Young's Practice in Urology, Vol. 2, Ed. 1926, pp. 481-512.

cystoscope and the examining finger in the rectum.² Any encroachment of the fibrous prostate into the bladder neck can be seen through the cystoscope. Obstructions of this type are treated by operation with the use of the Young punch. The bladder neck is punched out either directly through the urethra by means of illumination through the instrument, or else with the aid of a suprapubic opening, which enables the operator to perform the operation with the guidance of the palpating finger in the bladder.

Bladder neck contracture sometimes follows prostatectomy, necessitating a later operation to relieve the condition. This complication can, to a large degree, be eliminated by the use of the punch at the time of the enucleation of the prostate, the bladder neck being punched out posteriorly.²

In giving the results of the punch operation, Young reports a cure in 67 per cent of his series, and a marked improvement in an additional 11 per cent.

ROGER W. BARNES,
Los Angeles.

Ophthalmology

Treatment of Strabismus—The treatment of strabismus, or crossed eyes,³ should begin as soon as the condition is discovered, not only for the purpose of correcting the cosmetic defect, but to save the vision of the crossing eye. If one eye in a child is allowed to remain crossed until that child is over 6 years of age, the chances are that the eye will never have normal vision even though treatment is instituted after that age.

An "amblyopia ex anopsia," or loss of vision through disuse, develops and remains through life. The eye of an infant must be used to develop its maximum visual acuity, and when an eye crosses, it is not used, because if it were the child would see double.

Another reason for correcting the defect early is to try to re-establish binocular vision. Fusion of the two pictures from the eyes in the brain is a faculty which is developed in most of us during infancy, but this faculty cannot be developed when the eyes are crossed.

When the visual acuity of the crossing eye has been improved by refraction and the wearing of the proper glass over that eye, and by making the child exercise the bad eye by covering the good one, the time is ripe for the development of binocular vision. Stereoscopic exercises are used with the amblyoscope and the simple stereoscope. If the eyes do not straighten with the development of stereoscopic vision, we must resort to surgical procedures to keep permanently the ground that we have now gained.

The preferable surgical procedure is to advance or shorten the weaker muscle. If this will not correct the whole defect, the stronger muscle may be receded or partially cut. A free tenotomy is not

desirable. Operation is practically always successful if the parents will permit the surgeon to do a second, or even third, operative correction if the first one did not remove the entire defect. Frequently not enough is done at the first operation, as the surgeon fears an overcorrection of the squint, but the adjustment can almost always be made perfect by a subsequent operation.

The writer believes with those who hold that if these patients could be treated while under 3 years of age, we would have a very high percentage of functional as well as cosmetic restoration of these patients who have a strabismus.

WILLIAM A. BOYCE,
Los Angeles.

Obstetrics and Gynecology

Diet in Pregnancy—Although pregnancy is a normal bodily function and should not be regarded as a malady, it is certainly attended with many risks, and there is such a small border line between its physiology and pathology that the utmost care is necessary. Every pregnant patient should come under prenatal advice.

Diet in pregnancy is a matter of some importance. J. A. Polak¹ considers the following types of toxemia: hyperemesis, the preeclampsia toxemia, and eclampsia. Pernicious vomiting is evidently a serious complication, having a mortality rate of 20 per cent. Diet principles may impress the patient, and are advisable. Etiology or prognosis of the toxemia of the later months of pregnancy is not helped much by blood chemistry or metabolic rate findings. Herrick at Sloane Hospital has every toxemia of the later months of pregnancy studied by internists and biochemists.

In hyperemesis the dehydration and toxicity can be combated with copious ingestion of water in the form of alkaline waters. The carbohydrate deficiency can be cared for through increased intake of carbohydrates, fruit juices, cereals, custards, and some candy. Intravenous glucose alone, or in combination with insulin is occasionally a help. Some of these patients have defective emunctories or unbalance of the endocrine system.

DeLee in Chicago Lying-In Hospital at one time prescribed, without effect, salt-free diet for preeclampsia. Absolute milk diet did not stop the disease. Now he prescribes a salt poor, and a diet low in proteins and fat. Free use of water.

Sansum and Nuzum at Santa Barbara have done some excellent work in nutrition and food requirements. They find that vegetables, some nuts and fruits with the exception of prunes, plums and cranberries, give an alkaline ash causing increased alkalinity of the urine.

In our preclinic work at the College of Medical Evangelists we advise free use of fruits and fresh vegetables, avoiding strongly flavored vegetables, such as onions. We find the h-ion in urine goes up, and blood pressure comes down. The addition

2. Parker, Wilbur B.: Bladder Neck Obstructions, Their Surgical Relief in Reference to the Young Punch, *Surgery, Gyn. and Ob.*, 1923, pp. 36-43.

3. Weyman, M. F.: *California and Western Medicine* March, 1926.

1. *American Medical Association Journal*, June 24, 1926.

of cereals or meats may cause a change in the reaction of urine, and an increase in blood pressure.

Recently we had a good illustration of the prune as an acid ash. A mother brought a baby in with urine showing a strong ammonia odor and acid reaction. An erythema around genitalia and inside of thighs. Stopping the prunes, giving milk and vegetable broths, cleared up the difficulty.

Preeclamptic patients coming under treatment respond to basic diet and use of magnesium sulphate 20 cc. of a 10 per cent solution, given intravenously.

Patients long in labor and almost in starvation acidosis are given orange juices. In 1921 Blatherwick and Long² found it impossible to give sufficient orange juice to overstep the power of the body to utilize these organic acids.

Expectant mothers need also to be well fed, for the sake of the unborn. They should have foods rich in inorganic constituents. The new-born infant weighing six pounds contains more than an ounce of lime, all of which must be stored up during gestation. Dr. William P. Lucas discussing an article by Dr. H. W. Chappell,³ "Early Rachitic Changes in the Femur and Tibia," says:

"While diet and hygiene are important factors in the production and cure of rickets, I am of the opinion that the diet of the mother during pregnancy and lactation is equally important in determining the susceptibility of an individual. Statistics show that the average American dietary is low in minerals, especially calcium. This is particularly true of the poorer classes in large cities who cannot afford sufficient quantities of the mineral-rich foods, such as fresh fruit, green vegetables, and milk. In the light of our experimental observations which agree well with clinical experience, we dare to believe that when the dietaries of expectant mothers are planned to include liberal quantities of inorganic constituents in their proper proportions, a long step will have been taken toward the eradication of this disease which has baffled the medical profession for so many generations. If this theory is proven true, rickets of the future will be the responsibility of the obstetrician rather than the pediatrician."

P. MARTIN KELLER,
Los Angeles.

Dermatology and Syphilology

Bismuth Salt Therapy in Syphilis—Experimental work on bismuth salts in treatment of syphilis is now sufficiently complete to serve as a trustworthy guide in treatment. Aside from the value of bismuth as a therapeutic agent, the question of dosage, frequency of administration, length of courses and frequency of courses is important.

Conclusions from early studies on absorption^{1 2}

of bismuth injected intramuscularly, based on the persistence of the x-ray shadow at the site of the injection, were contradictory. The shadow sometimes disappeared when the bismuth could be demonstrated microscopically and chemically at the site of injection, and it sometimes persisted (due to calcium soap³ from the oil suspension medium) after no bismuth could be demonstrated. It is interesting that some of the soluble salts are absorbed less readily than insoluble ones, due to focal necrosis³ at the site of injection, from the union of soluble bismuth with tissue albumin. Chemical analysis of the tissue³ carrying the site of injection demonstrated that 67 per cent of bismuth salicylate was absorbed in eight days and 95 per cent in twenty-one days. Bismuth salicylate is apparently the most rapidly absorbed of the insoluble salts.

The distribution of bismuth throughout the body has been determined by chemical analysis of the various tissues at different periods after injection of various bismuth salts.⁴ Bismuth penetrates every tissue and organ of the body, including brain and bone. Fifty per cent can be recovered from the various tissues of the body 189 days after a single injection. About 40 per cent can be recovered from the urine and feces during this time, which contains a variable amount during the entire period of study (189 days). About 95 per cent of the total amount injected can be accounted for at the end of 189 days.

Previous studies on the therapeutic efficiency of various bismuth salts in experimental syphilis indicate the salicylate to be as good as any of the insoluble salts.³ The dosage should be in exact relation to the body weight; 0.12 gram or 2 grains per 130 pounds being apparently the best for weekly injections.

The effect of bismuth alone and in combination with the arsenobenzenes, on the Wassermann reaction has been studied by Wright⁵ in a series of 128 cases. Eighty per cent were still Wassermann positive after one course of neoarsphenamine and mercury salicylate, and of this number 52 per cent became negative after fifteen weekly intramuscular injections of bismuth of 0.1 gram each. Of the 20 per cent that were negative after the neoarsphenamine course none again reverted to positive after having been given bismuth. "Given in early syphilis its spirochaeticidal activity is but little less than that of the arsenobenzenes, and yet it does not provoke the severe reactions that are not uncommon following the initial dose of an arsenobenzene."

MERRILL W. HOLLINGSWORTH,
Santa Ana.

2. A. M. A. Bio. Chem., 1922, lili, 103.

3. California and Western Medicine, December, 1925.

1. Cole, H. N., Farmer, H. L., and Miskdjion, H.: Intramuscular absorption of Some Insoluble Bismuth Compounds as Revealed by the Roentgen Rays, Arch. Dermat. and Syph., 1926, xiii, 219.

2. Beinhauer, L. G., and Jacob, E. M.: The Relative Absorption and Therapeutic Efficiency of Some Bismuth Preparations, Am. Jour. Syph., 1925, ix, 213.

3. Gruzheit, O. M.: Bismuth Salicylate in Experimental Rabbit Syphilis, Arch. Dermat. and Syph., 1926, xiii, 195.

4. Gruzheit, O. M.: Bismuth Absorption, Distribution, and Elimination, Am. Jour. Syph., 1927, xi, 103.

5. Wright, Carrol S.: The Effect of Bismuth Alone and in Combination with the Arsenobenzenes on the Wassermann Reaction, Am. Jour. Med. Science, 1927, clixiii, 2, 232.

Orthopedics

The Carrel-Dakin Treatment of Infected Wounds—Accidents cause many severe injuries for which Carrel-Dakin treatment is indicated; and industrial surgery offers a wide field for its application. Unfortunately, the desire to save initial medical expense too often deprives the patient of this protection, and results in unnecessary loss of life or limb.

The Carrel-Dakin technique, when correctly applied to the type of lesion for which it is adapted, is without a rival in controlling and sterilizing certain very dangerous contaminated and infected wounds. It was perfected by the Rockefeller Institute. Every known germicide practicable for wound cleansing was the subject of investigation. Every single detail of the meticulous and time-consuming technique as finally standardized has survived the determination of competent investigators to simplify the procedure to the last degree compatible with efficiency.

That surgeon is in error who believes that he can deviate from the standard technique and obtain equally sure and satisfactory results.

The method essentially consists in the intermittent irrigation of the wound (at two hour intervals day and night) through specially perforated rubber tubes, with a solution containing .4 to .5 per cent sodium hypochlorite, negative to the powdered drug but giving a flash test to alcoholic solution of phenolphthalein. The effectiveness of Dakin's solution depends at least as much upon the proper degree of alkalinity as upon the available chlorine. Wounds must be dressed daily with extreme care, surrounding skin cleansed with neutral soap solution and protected by a coat of sterile vaseline. A sufficient number of properly perforated tubes must be distributed so as to insure thorough irrigation of all wound surfaces and the whole enclosed in large absorbent pads.

Chutro became such a master of this technique that he was credited with having dressed a hundred cases daily in addition to carrying a heavy operating service. Having seen Chutro demonstrate his technique, the writer thinks the report was not exaggerated.

Carrel-Dakin treatment is very valuable in extensive grossly contaminated wounds, especially where fractures are involved. The most spectacular results are in cases complicated by gangrene. When there is much devitalized tissue, this treatment minimizes the necessity for destructive mechanical debridement. Necrotic tissue is liquefied without sacrifice of living tissue and adherent foreign bodies are rapidly flushed out.

When operation for removal of infected foreign bodies or sequestra exposes fresh tissues to contamination, immediate postoperative irrigations destroy the surface contamination and speedily digest away all material favorable to further bacterial growth.

It is a grave mistake to delay the beginning of

postoperative irrigations until the initial state of simple contamination has passed into one of active infection. Through such delay, the most brilliant results of the treatment are lost.

Invaluable for the primary cleansing of contaminated joints, the treatment must be terminated as soon as tissue exudates and devitalized tissue are removed, otherwise rapid digestion of cartilage ensues.

A technique so exacting is sure to be the target for much adverse criticism and unfavorable report. Failures of the indiscriminating who have not used the proper technique or who have not selected suitable cases, are augmented by the exploitation of more or less worthless proprietaries. Only those proprietaries which are simply concentrated alkaline solutions of hypochlorite, of known and reliable titre, so that dilution to a true Dakin's solution is practicable, may be depended upon to give satisfactory results.

E. W. CLEARY,
San Francisco.

Fractures of the Hip—In the minds of many of the profession, fractures of the hip are all one and the same. Prognosis is based upon the age of the patient and not upon the character of the break. If the patient is elderly, permanent almost total disability is to be expected. If the patient is of middle age or younger, a prognosis of partial permanent disability is at once made. A clearer conception of the mechanical problem in fractures involving the hip will make for a more intelligent treatment and a more hopeful outlook for the patient's future. For practical purposes, there are two general types of hip fractures: one, fractures of the neck of the femur; two, fractures involving the trochanter (intertrochanteric). Both types may be impacted, but impaction of the neck is comparatively rare. It is in these rarer cases that many grievous errors arise either from careless diagnosis or from poor films. Each year a number of cases are seen of this type where the diagnosis has been "No fracture," the treatment outlined on this basis, and the end result a wholly unnecessary disaster. The import of this from a medico-legal standpoint, is self evident.

The prognosis in fractures of the neck of the femur is dependent on several factors. Extreme old age withstands any fracture poorly. Mental deterioration with attendant incontinence makes the outlook very bad, but in the long run, the prognosis in my opinion is largely based on the treatment. Reposition of the fragments and effective maintenance of the position, are the biggest factors in securing union. Union occurs in fractures of the neck with almost the same certainty as elsewhere in the femur if properly reduced and immobilized. In all intertrochanteric fractures, the prognosis for union, though coupled with shortening and deformity, is uniformly good in spite of indifferent treatment. The reason seems evident when one con-

siders the wide area of fracture surface exposed in the fragments in such a fracture. There is no circulatory problem in the nourishment of the fragments here, such as one finds in neck fractures. End to end apposition is almost assured, no matter how true the approximation of the fragments.

From their experience, orthopedic surgeons who have cared for large numbers of these patients, are rather universal in recommending the Whitman abduction spica plaster cast method for handling fractures of the neck. The essentials of this method are traction, wide abduction, internal rotation and slight hyperextension. The traction takes care of the shortening; abduction, such that the great trochanter almost rides against the rim of the acetabulum, stretches the capsule and prevents later over riding; internal rotation throws the neck against its fellow fragment and cares for antero-posterior displacement; hyperextension binds them together firmly by stretching the Y ligament across the anterior fracture area. Such a reduction and cast allows frequent change of position so necessary in the aged. It holds the fragments immobile and therefore eliminates pain. Union is assured because of almost perfect reduction. The intertrochanter fracture is also handled best, in my opinion, by a plaster cast. Moderate abduction with the extremity in the neutral position as regards rotation, is the proper position. The cast is best made to extend down the opposite thigh to the knee. This tends to prevent, by a firm grip upon the pelvis, the over riding of the fragments and consequent shortening, which will almost invariably occur in the single spica cast in this type of fracture.

Treatment of the impacted fracture is often ill advised. Rarely does an impaction remain impacted. Nature picks up the debris and shortly the impaction is lost. Loose fragments which need immobilization are the results. It is well to treat all impacted fractures of the hip in the same manner that you would treat the ordinary intertrochanteric without impaction. Ill advised violation of the tenets of immobilization, even in the recumbent position, often leads to deformity or non-union.

SUMMARY

1. X-ray all hip injuries and accept and study only clear cut views.
2. Know the type of fracture with which you are dealing and treat it accordingly.
3. Properly reduced and immobilized in a Whitman spica cast, fractures of the neck give a hopeful prognosis.
4. The prognosis for intertrochanteric fractures, if the normal relation of the fragments is at all maintained, is uniformly good.
5. Impacted fractures are a source of danger and should be treated with the same thoughtful care as other types. Immobilization and protection are essential.

H. W. SPIERS,
Los Angeles.

Otorhinolaryngology

Postoperative Treatment of Radical Mastoid Operation—In a recent correspondence of the *British Medical Journal* of February 26, 1927, A. J. Wright of Bristol recommends the use of paraffin as a substitute for the common gauze packing in the radical mastoid cavity. He uses the French proprietary preparation called "Ambrine," which corresponds to the B. P. C. paraffin preparation No. 7, a mixture of hard and soft paraffin with resorcin, eucalyptol and olive oil, which has for its melting point 48 degrees C.

All that is necessary is to melt the preparation in a test tube in a water bath and pour it into the cavity, whether a skin graft has been made or not. It can be removed without difficulty by picking it out with forceps. He claims the following advantages: I. The cavity heals with astonishing rapidity. II. It can be introduced painlessly and with a certainty that the whole cavity will be filled. III. The discharge diminishes very rapidly.

Adams of Glasgow, writing in the B. M. J. the following week, confirms what Wright says about the advantages of paraffin in the after treatment of radical mastoid cavities. He says they are "a painless introduction and removal of the paraffin, rapid diminution of discharge and quick epithelialization of the surface. The resulting cavity is excellent."

The paraffin can be scraped into a teaspoon, warmed over a spirit lamp and, after being tested as to temperature, poured into the ear. There is no need of any special dressing after this procedure.

In a radical mastoid operation, one's aim is to produce ultimately a dry or healed ear. A great aid in the process of healing is the correct treatment of the eustachian tube at the time of operation. Curetting does not always cause a firm closure; one sometimes is sadly disappointed after careful curetting to know that postnasal infection still finds access to the ear through the eustachian tube. One can be more sure of a permanent closure by the momentary insertion of a needle shaped electric cautery point down the tube as far as the isthmus. This sterilizes and seals the tube and assures to the operator a dry ear. With the paraffin dressing and the sealing of the eustachian tube one can expect an excellent result in radical mastoid cavities.

C. H. HAYTON,
Los Angeles.

1. Walker, J. E.: *J. Infect. Dis.*, 1926, 38, p. 127.

Suicide Record—Henpecked husbands may be surprised to know it, but suicide is more frequent among the unmarried than the married, according to a study of 307 cases made by Dr. S. Serin, a physician of Paris, and reported by the French correspondent of the American Medical Association, says the *Science News Letter*. Suicide is resorted to as the way out of life's problems more frequently by men than by women, and more often by the elderly rather than the merely adult, Doctor Serin finds. He divides the causes of suicide into five classes: insanity, alcoholism, severe grief, incurable disease, and poverty.—*M. J. and Record*.

STATE MEDICAL ASSOCIATIONS

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OFFICIAL NOTICES

Extension Lecture Service—The yearly revision of the Extension Lecture program of the California Medical Association is in progress.

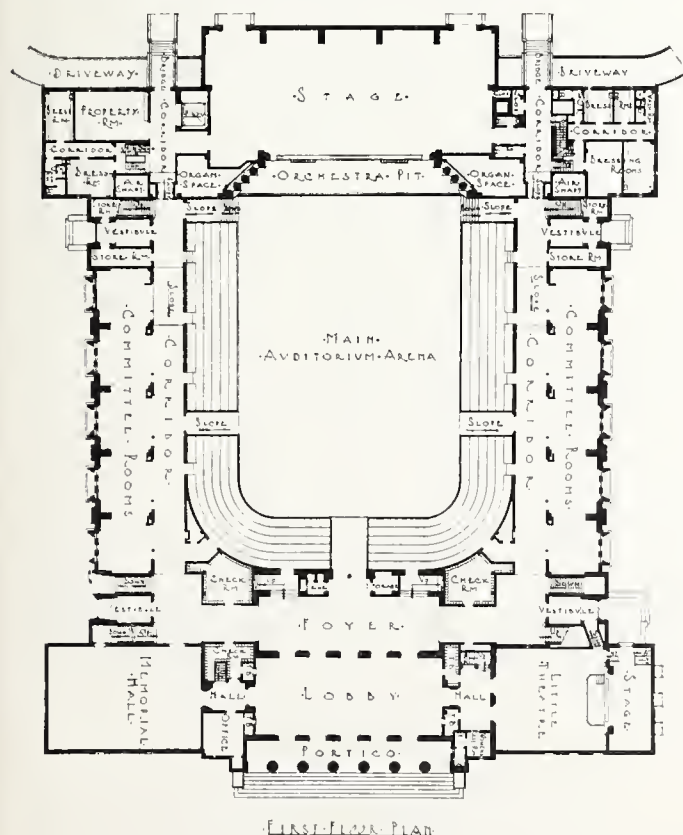
Those members not on the present list who desire to be included in this service should at this time furnish to the State Association office their names and a list of not more than four subjects, which they are prepared to present before county societies on call.

When lantern slides are used to illustrate lectures a notation to that effect is helpful. Lecturers are permitted the use of the Association's lanterns in this service, and may secure them from the office, 1016 Balboa Building, between the hours of 9 a. m. and 5 p. m. daily, except on Saturday, when the office closes at noon.

It is earnestly hoped that interest in the Extension program will be stimulated by the submission of an enlarged and varied program.

Meeting of the Council of the California Medical Association—The next meeting of the Council of the California Medical Association will be held in the Hotel Biltmore, Los Angeles, October 8, 1927.

Annual Session—April 30 to May 3—The new auditorium at the state capital will house the 1928 meeting of the California Medical Association. The accompanying floor plan shows the main auditorium for all general sessions, the large Memorial Hall and Sutter



Theater rooms for the General Medicine and General Surgery Sections, and the ten smaller connecting rooms facing Fifteenth and Sixteenth streets where other sections meetings will be held.

* * *

Hotel Senator is the official hotel headquarters.

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Members who desire to present papers before the fifty-seventh annual session should make application to the secretary of the appropriate section *now*. On February 15 the completed program is in the state office. Applications for space on the program straggle in all through February and March and even into April after the program, which regularly appears in the April issue, is in the hands of the printer. For space on any annual program, application should be made during the preceding autumn.

The names and address of section officers are monthly listed in the *Directory of Medical Organizations* indexed, which is found on the title page of CALIFORNIA AND WESTERN MEDICINE under "Miscellany."

* * *

If a member desires the paper which he presents at the annual session also entered in the Clinical Prize Contest or in the Research Prize Contest, he may enter it according to the following directions:

How Clinical and Research Papers May Be Read at Annual Meeting—How Papers Presented Before the Annual Session May Be Entered for Clinical and Research Prize—All papers entered in the Clinical or Research Prize Contest are eligible to be read at the annual meeting of the California Medical Association, providing the paper is received by the state secretary before December 20 of the year preceding the annual meeting and approved by the Program Committee. Conversely, papers written primarily for section programs may be entered in the Prize Contest in the following way:

Send two copies of your paper to the state secretary, 1016 Balboa Building, San Francisco, before December 20, with an unsigned note that you wish your essay submitted for a prize and also read at the annual session. Sign your paper with your nom de plume. Also send your name in a sealed envelope with the nom de plume appearing on the outside. Use no stationery that in any way reveals your identity.

The state secretary shall deposit all nom de plume envelopes in a safe until the Prize Committee has made its decision.

The state secretary on receiving a prize paper which is submitted for presentation at the annual session shall submit said paper to the members of the Program Committee. The Program Committee will approve or disapprove it for place on the annual program. The Program Committee will inform the state secretary of its decision, and the secretary will then forward the titles of approved papers to the appropriate section secretary with a simple statement that the paper is acceptable for a place on the program. The Prize Committee will not be informed of this decision and action. A paper may be acceptable for a prize and not for a program, and vice versa.

The Prize Committee shall receive all papers which have been sent to the state secretary, whether approved for publication or not, on or before January 1. The sealed written report of the Prize Committee shall be submitted to the state office before March 1.

The Executive Committee, at the first meeting after March 1 of a given year, shall open the nom de plume envelopes and furnish the secretary the proper names of the authors for the published annual program.

The Council shall consider the report of the Prize

Committee at its first meeting of the annual session, and shall announce the result at the first general meeting of the Association. Both the Clinical and Research Prizes by the California Medical Association are for \$150.

COMPONENT COUNTY SOCIETIES

SAN JOAQUIN COUNTY

The board of directors of the San Joaquin County Medical Society met at the call of the president, Wednesday evening at 7:30 p. m., August 10, 1927, at the headquarters of the local Health Center, 129 South American Street, Dr. J. W. Barnes presiding. Those present were Drs. J. W. Barnes, Fred J. Conzelmann, Barton J. Powell, G. H. Sanderson, and J. J. Sippy. Absent: Drs. H. S. Chapman, L. R. Johnson, and R. T. McGurk.

The Chair stated that the object of the call was to consider the request of some members of the society for a discussion of the action of the Ethics Committee as recorded in its letter of June 23 to all members of the society relative to its findings on physicians' services to the Pacific Health and Hospital Services Corporation.

After the question was discussed for some time the Chair entertained a motion. Dr. J. J. Sippy moved, seconded by the secretary, that the board of directors of the San Joaquin County Medical Society endorse the action of the Ethics Committee as stated in its letter of June 23, 1927, and recommended to the society that any member of the society who continues to render services to the Pacific Health and Hospital Services Corporation or similar organizations, should be suspended from the society.

The motion carried unanimously. There being no further business the meeting adjourned, sine die.

FRED J. CONZELMANN, *Secretary*.

SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held in the staff room of the Cottage Hospital, H. E. Henderson, president, in the chair. Twenty-one members and four interns were present. Secretary W. H. Eaton, absent at Del Monte training camp.

Minutes read and approved.

Application of F. G. Crandall, M. D., County Health Officer, for transfer to this society from Jackson County, Missouri, read. Transfer card accompanied same. On motion duly seconded it was voted to accept.

Dr. Milton Geyman read a paper and presented slides and x-rays, with case reports on osteochondritis dessicans. One case was of the hip-joint, another of the patella. He was unable to find any cases in the literature of these two locations. Discussion by Drs. Rodney Atsatt and Harry Schurmeier.

Dr. Rexwald Brown presented the gross specimens of pathological kidneys; removed from patients now in the hospital recovering: one tuberculous kidney, one old pyelonephrosis with complete destruction, and one with multiple stone. All three were diagnosed by cystoscopy, having been treated for many years inadequately. He also presented a large uterine fibroid removed successfully which weighed sixteen pounds. Discussion by Doctors Geyman, Pierce, Profant, Manning, and Sansum.

P. C. MEANS, *Secretary pro tem*.

STANISLAUS COUNTY

The June meeting of the Stanislaus County Medical Society was held at the Hotel Hughson, Friday night, June 10. This was the last meeting before the summer vacation. The banquet was held at 6:30 p. m. There were twenty-four members present and five visiting physicians.

At the business meeting a motion was presented which would prohibit any hospital in the county from receiving patients of a physician not a member of the medical society. It was the opinion of the majority that this motion was very necessary, but because of

the fact that that too hasty an action may be a bad thing the matter was laid on the table.

A letter was read from Dr. F. R. DeLappe. He suggested a concerted effort to increase the membership of the society. There are four or five available men in the county.

Following the business meeting a most excellent program was given by four physicians of the Sutter Hospital group of Sacramento: Dr. F. F. Gundrum, Cardiac Arrhythmia; Dr. June Harris, Mesenteric Lymphadenitis; Dr. Nathan Hale, Prostatitis; Dr. Thomas Haigg, Tuberculosis of the Hip. All of the papers were very complete, and many new suggestions for treatment were introduced. The paper by Doctor Harris was particularly good. Many of the cases thought previously to be appendicitis were pointed out as a gland entity.

The next meeting of the society will be held next September.

J. W. MORGAN, *Secretary*.

CHANGES IN MEMBERSHIP

New Members—Alameda County—Bertha E. Jenkins; W. Whitfield Crane, Oakland.

Los Angeles County—Ethel May Andre, John F. Brownsberger, Owen H. Homme, Ernest C. Kellogg, Abraham Metzner, Lucien L. Miner, John E. Potts, Los Angeles; Philipp E. Schmidt, Glendale; Julius C. Sosnowski, Long Beach.

Tulare County—Newton Miller, Porterville.

Transferred Members—Clark L. Abbott, from Contra Costa County to Alameda County.

Paul S. Barrett, from Fresno County to San Mateo County.

Carl B. Bowen, from San Francisco County to Alameda County.

Charles C. Fuller, from Fresno County to San Francisco County.

Allen K. McGrath, from Sonoma County to Napa County.

DEATHS

Baker, Wood C. Died at San Mateo, August 17, 1927, age 47 years. Graduate of Cooper Medical College, 1903. Doctor Baker was a member of the San Mateo County Medical Society, the California Medical Association, and Fellow of the American Medical Association.

Barton, Orren L. Died at Loomis, July 14, 1927, age 68 years. Graduate of Medical College of Ohio, 1879. Licensed in California, 1889. Doctor Barton was a member of Placer County Medical Society, the California Medical Association, and the American Medical Association.

Coulter, Frank Edwin. Died at Santa Ana, July 18, 1927, age 66 years. Graduate of Rush Medical College, 1882. Licensed in California, 1916. Doctor Coulter was a member of the Orange County Medical Association, the California Medical Association, and the American Medical Association.

Outlaw, John S. Died at Los Angeles, July 15, 1927, age 64 years. Graduate of Howard Medical College, Washington, D. C., 1891. Licensed in California, 1900. Doctor Outlaw was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

Smith, J. Hubert. Died at Clovis, August 14, 1927, age 32 years. Graduate of Vanderbilt University, Nashville, Tennessee, 1921. Licensed in California, 1922. Doctor Smith was a member of the San Bernardino County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

OBITUARY

Frank Edwin Coulter

Frank Edwin Coulter was born in St. Joseph, Missouri, in 1860. He received his preliminary education at the Burlington, Iowa, High School. He

graduated in medicine from Rush Medical College in 1882.

He located in Waterloo, Nebraska, where he practiced for some years before moving to Omaha, Nebraska. In 1901 he worked for a year at the National Hospital for the Paralyzed and Epileptic in London, England, under Sir William Gowers. He again returned to Omaha, and for the rest of his life limited his practice to nervous and mental diseases. He was professor of nervous anatomy for seven years and clinical professor of neurology and psychiatry for twenty years at the Creighton University Medical School in Omaha. He removed to Santa Ana in 1922, where he continued his work until his death.

He was a member of the Orange County Medical Association, California Medical Association, American College of Physicians, Los Angeles County Society of Nervous and Mental Diseases, and the Association for the Study of Internal Secretions.

During his residence in Santa Ana he was active in the affairs of the medical society and of the community. He helped to organize and was an active member of the staff of the Orange County General Hospital. He was a member of the Masonic and Elks lodges, the Kiwanis Club, the Santa Ana Country Club, and the Balboa Palisades Club.

He is survived by his aged mother, by his widow and three children.

He will indeed be missed by all of us both for his counsel in his special field of work and for his genial personality and ever active interest in all our activities.

UTAH STATE MEDICAL ASSOCIATION

W. R. CALDERWOOD, Salt Lake.....President
E. H. SMITH, Ogden.....President-Elect
FRANK B. STEELE, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....Associate Editor for Utah

OFFICIAL NOTICES

The attention of the members of the Utah Medical Association is called to the circular notices of August 3 from the State Commissioner, J. T. Beatty.

The first of these dealt with the subject of gratuitous clinical service to indigent residents of the state by the Bacteriological Laboratory of Utah.

The second had to do with the bulletin of the Bacteriological Laboratory calling attention to the tests which the laboratory is prepared to make to aid in the diagnosis of whooping cough.

In the second of the bulletins sent out, attention was called to the fact that the bacteriological laboratory of the Utah State Board of Health is prepared to send a copy of its manual to all physicians of Utah who send in their requests for the same.

Dr. Howard Kelly Visits Utah—One of the interesting medical events of July was the visit of Dr. Howard Kelly of Baltimore, Maryland, to his friend Dr. George Middleton of Salt Lake. Although primarily traveling more or less incognito, because of his desire for a vacation. Doctor Kelly met a number of the medical fraternity during his sojourn in the state.

A dinner was given for him at Pine Crest Inn on the evening of July 10. He also made trips to the scenic region of southern Utah, visiting Zion's Canyon and Bryce.

According to the doctor he came West mainly to rest, view the scenery, and add specimens to his collection of reptiles and fungi. Already he possesses the largest private collection of serpents of any man in the world. During his visit to Zion he enjoyed the sport of catching several specimens, which he took with him when he left, on one occasion dashing precipitately down a fifty-foot embankment in order to capture a dusty, brown blow snake, and hold it triumphantly aloft.

Eleven Physicians Granted Licenses—Eleven physicians have been registered in Utah and licenses

granted them to practice in that state, according to announcement Tuesday by H. Welling, director of the state department of registration.

Of the eleven, five were candidates who passed the recent examinations and six were registered by reciprocity. Those passing the tests were L. M. H. Tillotson, Albert B. Leigh, E. S. McQuarrie, Joseph Oscar Jones and Clark L. Rich. Those registered by reciprocity were Warren H. Twining, Guy Alton Koon, Erastus Clark McIntyre, James Edward Scobee, Quince Burt Coray, and Mary Montgomery.

Registration was granted also to nine persons as obstetricians: Ida May Cooper, Lucie Rosine Gaigne, Annie C. Lingard, Charlotte Paskett, Anna May Chip, Mildred F. Strauser, Katherine Nolte, J. P. Henderson, and Gladys Beath.

Annual Meeting of Nevada State Medical Association will be held at Bowers' Mansion, near Reno, on September 23-24, 1927. A cordial invitation to attend is extended by the state secretary, Dr. Horace J. Brown, to all members of the California Medical Association.

Sterilization of Feeble-Minded—(Supreme Court of the United States; Carrie Buck, by R. G. Shelton, her guardian and next friend, v. G. H. Bell, superintendent of the state colony for epileptics and feeble-minded. In error to the Supreme Court of Appeals of the state of Virginia. No. 292, October term, 1926. Decided May 2, 1927.)

The decision of the Supreme Court upholds the judgment of the Supreme Court of Appeals of Virginia, affirming a judgment of the Circuit Court of Amherst County, by which the defendant was ordered to perform the operation of salpingectomy upon Carrie Buck, for the purpose of making her sterile. Carrie Buck, who was committed to the state colony for the feeble-minded in due form, is the daughter of a feeble-minded mother in the same institution and the mother of an illegitimate feeble-minded child. The case is appealed on the contention that the statute authorizing the judgment is void under the fourteenth amendment as denying to the plaintiff due process of law and the equal protection of the laws. In the opinion of the court, delivered by Mr. Justice Holmes, "There can be no doubt that so far as procedure is concerned the rights of the patient are most carefully considered, and as every step in this case was taken in scrupulous compliance with the statute and after months of observation there is no doubt that in that respect the plaintiff in error has had due process of law. The attack is not upon the procedure but upon the substantive law. It seems to be contended that in no circumstances could such an order be justified. . . . We have seen more than once that the public welfare may call upon the best citizens for their lives. It would be strange if it could not call upon those who already sap the strength of the state for these lesser sacrifices, often not felt to be such by those concerned, in order to prevent our being swamped with incompetence. It is better for all the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. The principle that sustains compulsory vaccination is broad enough to cover cutting the fallopian tubes. (Jacobson v. Massachusetts, 197 U. S. 11.) Three generations of imbeciles are enough."

According to the World Almanac, the number of feeble-minded persons in institutions in the United States is 39.3 per 100,000 of total population, as against 22.5 in 1910. Some daily journals have pointed out that there might be danger from these sterilization laws, but provisions have been made in the Virginia act, which include public hearings, reduction of all evidence to writing, appeal to the circuit court of the county or the supreme court of the state.

MISCELLANY

NEWS

THE ROCKEFELLER FOUNDATION *

Review of Work in 1926

By GEORGE E. VINCENT
PRESIDENT

THE YEAR IN BRIEF

During 1926 the Rockefeller Foundation, in disbursing \$9,741,474, (1) aided the growth of fourteen medical schools in ten different countries; (2) maintained a modern medical school and teaching hospital in Peking; (3) assisted the development of professional public health training in fifteen institutions in twelve countries and in ten field stations in the United States and Europe; (4) contributed to nurse training schools in the United States, Brazil, France, Poland, Yugoslavia, China, Japan, and Siam; (5) sent, as emergency aid, journals, books, or laboratory supplies to institutions in twenty European countries; (6) helped twenty-one governments to combat hookworm disease; (7) gave funds to organized rural health services in 244 counties in the United States and to thirty-four districts in twelve other countries; (8) shared in the creation or support of various departments in state or national health services in sixteen countries; (9) cooperated with Brazil in the control of yellow fever, or in precautionary measures against the yellow fever mosquito, in ten states; (10) continued yellow fever surveys and studies in Nigeria and on the Gold Coast; (11) aided efforts to show the possibilities of controlling malaria in nine North American states and in Porto Rico, Nicaragua, Salvador, Argentina, Brazil, Italy, Spain, Poland, Palestine, and the Philippine Islands; (12) helped to improve the teaching of physics, chemistry, and biology in eleven institutions in China and in the government university of Siam; (13) supported the Institute of Biological Research of the Johns Hopkins University and contributed toward the publication of *Biological Abstracts*; (14) gave funds for biological or mental research at Yale University, the State University of Iowa, and the Marine Biological Station at Pacific Grove, California; (15) provided, directly or indirectly, fellowships for 889 men and women from forty-eight different countries, and paid the traveling expenses of sixty-nine officials or professors making study visits either individually or in commissions; (16) helped the Health Committee of the League of Nations to conduct international study tours or interchanges for 120 health officers from forty-eight countries; (17) continued to aid the League's information service on communicable diseases; (18) made surveys of health conditions, medical education, nursing, biology, or anthropology in thirty-one countries; (19) lent staff members as consultants and made minor gifts to many governments and institutions; (20) assisted mental hygiene projects both in the United States and in Canada, demonstrations in dispensary development in New York City, and other undertakings in public health, medical education, and allied fields.

ESSENTIAL FACTORS IN HEALTH PROGRESS

The triumphs of preventive medicine are widely acclaimed. Health departments report the decline of

* This interesting foreword to Doctor Vincent's report is self-explanatory. Reference to this report is made in one of the editorials in this issue of California and Western Medicine.

communicable diseases and the fall of the general death rate. In recent years the infant mortality rate has dropped rapidly: in London, for example, it fell from 159 deaths (within the first year) per thousand living births in 1900 to 68 in 1925, and in New York from 192 to 65 during the same period.

Smallpox is almost unknown in parts of Europe and in a few states of the United States; typhoid epidemics are rare in efficiently administered communities; tuberculosis is decreasing among many populations; diphtheria is coming under successful control; the outlook for preventing the spread of scarlet fever is brighter; malaria is being ousted from various strongholds; yellow fever seems to be making a last stand; cholera cannot seriously invade a country which has a modern water supply and proper disposal of wastes; typhus has few terrors for communities addicted to soap and water and clean linen.

But the modern health movement is not content with sanitation and the control of communicable diseases; it goes on to the hygiene of groups and of individuals. It is not satisfied with a negative prevention of disease; it preaches a gospel of positive, active, vigorous physical and mental well-being.

So the hygienes multiply to include mothers, babies, little children, school children, adults, industrial groups, and the victims of tuberculosis and of venereal diseases. A mental hygiene deals with feeble-mindedness, delinquent criminal tendencies, maladjustments, and various forms of psychic disturbances. Food, clothing, posture, sleep, occupation, exercise, recreation, social relations, personal adjustments, are becoming concerns of public health.

Full credit is due to sanitarians and hygienists for the results achieved; but it must be remembered that many factors have combined to reduce the amount of communicable disease, to raise health standards, and to bring down death rates. These gains reflect not only the results of purposeful preventive and positive health measures, but record progress in economic welfare, in housing, diet, clothing, in municipal housekeeping, in the provision of public parks and playgrounds, in the education of parents, and in popular intelligence. Here is a case of complex multiple causation. It is impossible to give to each of the many factors its just due. But it is safe to assume that the conscious efforts of organized public health agencies are playing an influential part and are too important to be relaxed.

Even this rapid glance at modern health organization and activity reveals a multiplicity of things being done by many different kinds of functionaries scattered over wide areas, organized about centers of authority, exercising power, and supported by large funds. Doctors, investigators, health officers, sanitary engineers, statisticians, laboratory workers, technicians, nurses, inspectors, accountants, clerks, combined in working units which include city, town, and country, make up the personnel. Government departments, laws, and public funds provide appointments, authority, salaries, and supplies. In many cases voluntary health agencies maintained by private gifts supplement the resources of governments, help to show the feasibility of new measures, and educate public opinion in support of official policies.

The creation and maintenance in any country of a going concern like this call for definite things. First of all, research must be encouraged and intercourse with world centers of investigation must be kept up in order to have the essential scientific basis

for effective work. In the second place the medical profession must be intelligent and sympathetic. The physicians of a country can make or break a public health program. It is they who diagnose maladies, report cases of communicable disease, educate their patients, make health examinations, give advice about personal hygiene, influence public opinion.

It makes a world of difference whether practitioners are wholly devoted to individual ills and curative medicine or are committed to the modern idea of prevention. The progress of public health is largely due to the leadership of doctors of imagination and public spirit. To its medical schools a country must look for the kind of training and idealism which will produce doctors of the new type. Medical education is a vital factor in the development of public health.

Again, the different kinds of officials and special workers must have technical professional training. Public health is not something to which anyone may turn without appropriate preparation. Furthermore central services of many kinds must be set up: statistical bureaus, laboratories for diagnosis and for the production of vaccines, sera, and antitoxins, departments of communicable diseases, infant welfare, public health nursing, venereal diseases, popular education, and others.

Still further, a system of organization—rural, municipal, state, or provincial, as well as national—must be created and official relations of authority and co-operation clearly laid down. Sanitary laws and codes must give authority. Appropriate salaries, protection against political influence, retiring allowances, social recognition must attract and hold men and women of the highest type of professional efficiency and personal character.

Finally the public must be brought, through the education of children, the wide diffusion of information, and the concrete services of clinics, health centers, and visiting nurses, to appreciate and support the idea of preventing disease and of promoting health. In a democracy at any rate, public opinion cannot be ignored, whatever the temptation of the health officer to envy the hygienic efficiency of military camps or of such an expert's paradise as the Panama Canal Zone.

To sum up: the effectiveness of a national system of public health service depends upon the appropriate and cooperative development of scientific research; medical education; the training of health officers, laboratory workers, engineers, and nurses; the creation of central services; the organization of administrative units; the enactment of appropriate legislation; the provision of adequate funds; and the development of sound public opinion.

HOW THE FOUNDATION HELPS

It is within this general field of medical research and teaching, training of health personnel, and organization of health services that the Rockefeller Foundation finds its chief opportunities to lend a hand. It deals almost exclusively with universities or with government agencies, local, state, or national, and with these only upon their invitation. The constant aim is to stimulate progress, to encourage experiment, to demonstrate new methods, to increase efficiency.

It takes no interest in merely quantitative expansion. Nor does it assume more than a part of the cost of a new experiment or demonstration. It wants to be a partner not a patron. When it works with a government health service, the latter agrees to assume the entire responsibility within a limited period if the project proves of value. The Foundation succeeds best when it can withdraw completely from a health project which continues, as it began, under official auspices and is supported wholly by public funds.

As for medical education the Foundation has no ready-made, standardized, inflexible system to impose upon university schools. The more than four hundred medical teaching centers scattered through the countries of the world vary widely in national traditions, in stages of development, in methods of organization and teaching, in areas of influence. The Founda-

tion is primarily interested in helping a selected number of medical schools to demonstrate plans of improvement in medical education which might otherwise have to be postponed or even abandoned.

The programs which make the strongest appeal include the bringing together on one site of medical laboratories and teaching hospitals, the freeing of laboratory investigators and teachers from all outside duties, and the creation of a few clinical professorships whose holders are able to devote themselves to the care of patients, to research, and to teaching on a university basis.

The Foundation is especially interested in the development of modern departments of hygiene and in the permeation of the entire undergraduate course with the idea of disease prevention. But in no case are university trustees asked or permitted to bind themselves or their successors to continue any particular methods of organization and teaching. At most they agree to give a plan a fair trial. They are free at any time to change it.

In addition to fundamental medical education, the Foundation is interested in the professional training of health officers, sanitarians, statisticians, laboratory workers, and other personnel. Aid is given for the creating or developing of institutes of hygiene either as independent centers of research and teaching or as organic parts of medical schools. As a rule such cooperation is confined to countries in which the Foundation is assisting in public health activities. So too, assistance is given to schools of nursing because of the vital importance of modern nursing both to the teaching hospitals of medical schools and to the proper development of various public health services.

The public health program of the Foundation includes demonstrations in combating specific diseases, i. e., hookworm disease, malaria, and yellow fever; aid in improving central health department services which have to do with laboratories, vital statistics, sanitary engineering, and epidemic control; cooperation in the organization of rural health services with full-time personnel; the making of surveys; provision of field training and experience for health officers; and other forms of aid and service.

While the Foundation seeks to relate its various activities to one another and to the correlated medical and public health systems of each country with which it works, it also welcomes chances to promote international cooperation through contributions to the League of Nations for its health work, through the granting of fellowships to medical and public health students to work at home or in countries other than their own, and through international visits of health officials, medical scientists, and administrators. The Foundation lends its influence, not to standardize national programs of medical education and public health, but to combat a narrow provincialism and to promote the freest possible exchange of ideas throughout the world.

American College of Surgeons—The American College of Surgeons will hold the seventeenth clinical congress in Detroit, October 3-7. Headquarters will be at the Book-Cadillac and Statler hotels, and the meetings will be held at the Statler Hotel, and Orchestra Hall.

Special Course for General Practitioners in Physical Therapy—The Stanford Medical School announces to the physicians in California that Frank B. Granger, M. D., of Boston, Massachusetts, will conduct a one-week course in physical therapy from September 26 to 30, 1927.

This course will afford the physicians an opportunity to obtain, under ethical conditions and without any commercial connections, the latest and most authoritative developments of this branch of the therapeutic art from a recognized expert in this medical field.

Doctor Granger was director of physical therapy in the United States army during the World War.

At the present time he is physician-in-chief of the Department of Physical Therapeutics at the Boston City Hospital. Besides being instructor in physical therapeutics at the Harvard Medical School, and lecturer on the same subject at the Tufts Medical School, he is consultant to a number of hospitals, including the Boston Floating Hospital. He is a member of the Medical Council of the United States Veterans' Bureau and the Council of Physical Therapy of the American Medical Association.

The course will consist of lectures, demonstrations, the illustrative use of apparatus, and such clinics as can be fitted into the program. Special attention will be given to electrotherapy and the theoretical and practical application of such modalities as the galvanic, sinusoidal, faradic, static current, medical and surgical diathermy, and the use of the ultra-violet ray.

It is proposed to devote each morning from 10 on, and each afternoon from 2 o'clock on, to the work of this course. The lectures and demonstrations will be conducted in Lane Hall, Stanford Medical School Building.

The course will be strictly limited to properly qualified licensed physicians and surgeons. A nominal fee of \$10 will be charged for this course. On payment of the fee physicians will receive a card of admission to the lecture room in which the course is conducted.

Registration for the full course will be received at the dean's office, Stanford Medical School, on or before noon, September 20. Requests for information or remittances to cover advance registration should be addressed to The Dean, Stanford Medical School, 2398 Sacramento Street, San Francisco. A check for advance registration should be accompanied by the physician's name and home address, the medical school from which he graduated, and the year of graduation.

University of California Appoints New Man as Medical Dean—At the recommendation of President W. W. Campbell the Board of Regents of the University of California recently endorsed the appointment of Dr. Robert Langley Porter, former San Francisco city physician, as dean of the University Medical School, at Fourth and Parnassus, to relieve Dr. Lionel S. Schmitt, acting dean, who has been serving at that post for five or six years.

The regents directed that Doctor Porter, who is now in Rome, where he has been studying certain medical problems for the past two years, be notified of his appointment to the post, taking effect September 1, 1927.—*U. C. Clip Sheet.*

Dr. Stuart C. Way, recently returned from two years of study in Europe, has been made instructor in dermatology and syphilis at the Stanford University Medical School.

A partnership has been formed with Dr. Harry E. Alderson under the name of Doctors Alderson and Way, with offices in the Medico-Dental Building at 490 Post Street, San Francisco.

Golf Tournament—The annual tournament between the Northern and Southern Medical Golf Associations will take place again this year at Del Monte on October 29 and 30. Arrangements have been made for the southern players to leave on a special train Friday evening of October 28, to arrive at Del Monte early the following morning. Special nominal railroad and hotel rates have been arranged.

On Saturday, October 29, play will take place on the Del Monte course, and on the following day it will be completed on the Pebble Beach course. All play will be in team matches on handicap. Last year the bronze plaque was won by the North on points. This year the South is determined to even up the score and win it.

Dr. Walter V. Brem will again captain for the South. His team will be greatly strengthened by the

presence of Dr. Paul Hunter, California Amateur Champion, who will take part. Trophies will be awarded to both individuals and teams on handicap.

Interstate Postgraduate Medical Assembly—Pre-assembly clinics at the hospitals of Greater Kansas City upon Friday and Saturday mornings, October 14 and 15. Scientific programs and ambulatory clinics each afternoon at Muehlebach Hotel. Dr. J. Shelton Horsley of Richmond, Virginia, is a special guest upon Saturday afternoon, October 15; subject: "Peptic Ulcer," illustrated.

The intensive program of the Interstate Assembly will begin Monday, October 17, at 7 a. m., and continue morning, afternoon and evening, until the banquet in honor of the distinguished guests upon Friday evening, October 21.

The guests from Europe are as follows:

Sir John Bland Sutton, England, surgery; Dr. R. P. Ranken Lyle, England, obstetrics-gynecology; Dr. Ersilio Ferroni, Italy, obstetrics-gynecology; Prof. Adolphe Maffei, Belgium, pediatrics; Mr. Garnett Wright, F. R. C. S., England, pathology; Dr. I. Snapper, Holland, pathology; Dr. Gustav Alexander, Austria, otology; Dr. Otto J. Kaufman, England, neurology; Dr. Giuseppe Franchini, Italy; Dr. Sigmund Frankel, Austria; obstetrics-gynecology; Mr. John S. McArdle, F. R. C. S., Ireland; Prof. Carl Bohr, Germany, surgery; Dr. Luigi Margiagalli, Italy, obstetrics-gynecology; Dr. J. Marinho, Brazil; Dr. Fritz Steinmann, Switzerland; Dr. Paul Unna, Germany.

The distinguished guests from America include the following surgeons:

Dr. Charles H. Mayo, Rochester, Minn.; Dr. George W. Crile, Cleveland; Dr. Alfred W. Adson, Rochester; Dr. Arthur Dean Bevan, Chicago; Dr. Joseph Colt Bloodgood, Baltimore; Dr. Hugh Cabot, Ann Arbor, Mich.; Dr. Walter E. Dandy, Baltimore; Dr. John B. Deaver, Philadelphia; Dr. John F. Erdmann, New York; Dr. E. Starr Judd, Rochester; Dr. Francis E. Lahey, Boston; Dr. Dean Lewis, Baltimore; Dr. Charles H. Frazier, Philadelphia; Dr. William D. Haggard, Nashville; Dr. W. E. Lower, Cleveland; Dr. Robert C. Coffey, Portland, Ore.; Dr. Jabez N. Jackson, Kansas City, Mo.; Dr. George J. Heuer, Cincinnati; Dr. LeRoy Long, Oklahoma City; Dr. John J. Moorhead, New York; Dr. Allen Graham, Cleveland.

The following distinguished internists are to hold clinics or give addresses:

Dr. Lewellys F. Barker, Baltimore; Dr. Charles A. Elliott, Chicago; Dr. Elliott P. Joslin, Boston; Dr. Frederick J. Kaltefleiter, Philadelphia; Dr. James H. Means, Boston; Dr. Leonard G. Rowntree, Rochester, Minn.; Dr. Clarence M. Grigsby, Dallas, Texas; Dr. Francis M. Pottenger, Monrovia, Calif.; Dr. Frank Smithies, Chicago; Dr. David Riesman, Philadelphia; Dr. John Phillips, Cleveland; Dr. R. S. Dinsmore, Cleveland.

The specialties are represented by the following distinguished physicians:

Dr. James M. Martin, Dallas, Texas (roentgenology); Dr. Alfred S. Warthin, Ann Arbor, Mich. (pathology); Dr. Gabriel Tucker, Philadelphia; Dr. Frank C. Mann, Rochester, Minn. (clinical pathology); Dr. Irwin Abell, Louisville, Ky. (obstetrics-gynecology); Dr. Nathaniel Allison, Boston (orthopedic surgery); Dr. Alan Brown, Toronto, Canada (pediatrics); Dr. Fritz B. Talbot, Boston (pediatrics); Dr. William B. Hendry, Toronto, Canada (obstetrics-gynecology); Dr. Edward A. Strecker, Philadelphia (neurology-psychiatry); Dr. Charles Herbert Best, Toronto, Canada.—*J. Arkansas Med. Soc.*

Clinical Congress of Physical Therapy and Sixth Annual Meeting of American College of Physical Therapy—The American College of Physical Therapy announces that plans have been completed for its 1927 clinical congress of physical therapy and sixth

annual meeting to be held at the Hotel Sherman, Chicago, October 31 to November 5.

The program is extraordinary in character. The first three days are to be devoted to a school of instruction. For this purpose the country's most prominent clinicians and teachers have been selected, and intensive fundamental and clinical training will be given. There will be one day of sectional meetings, the following distinct sections being represented: (1) Medicine, Diagnosis, Pediatrics and Endocrinology; (2) Surgery, Gynecology, Urology, Orthopedics; (3) Eye, Ear, Nose, Throat, Oral Surgery.

The fifth day of the congress will be devoted to a joint session. Numerous special addresses by some of the foremost leaders in medicine will be offered. These will be of general interest to all whether in one specialty or another. The closing day will be given over to hospital and dispensary clinics.

Inasmuch as physical therapy has made such rapid strides in the past few years, a gathering such as this is of vital interest to every practitioner and specialist. The program in itself is attractive, but additional features in scientific and commercial exhibits, demonstration clinics, small group conferences, etc., will help to make this congress an unusual event.

Physicians in good standing in their county societies are eligible to attend, as are also technicians and doctors' assistants properly vouched for.

Those contemplating attendance are urged to enroll by mail as early as possible. The fee for the instruction classes is \$10, payable by all whether fellows of the college or not. Non-fellows of the college must pay in addition a registration fee to the assembly of \$5. Send for program and information to Chairman, Convention Committee, American College of Physical Therapy, Suite 820, 30 North Michigan Avenue, Chicago.

Examinations United States Public Health Service

—Examinations of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C., November 7, 1927.

At Chicago, Ill., November 7, 1927.

At New Orleans, La., November 7, 1927.

At San Francisco, Calif., November 7, 1927.

Candidates must be not less than 23 nor more than 32 years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass satisfactorily, oral, written, and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon-General, United States Public Health Service, Washington, D. C.

Health and Safety Hazards—Dr. Thomas R. Crowder, president of the American Association of Industrial Physicians and Surgeons, has appointed a committee to study the health and safety hazards in the twelve major industrial groups represented in the membership of the association. These groups include: automobiles, chemicals, electrical, food, foundries, iron and steel, metal, mining, public utilities, rubber, textiles, and office and trade.

Each member of a committee will make an investigation of those conditions in his own organization entailing possible or positive health hazards. This information will be assembled for analysis and study. The results will be made available through the bulletin of the association.

It is believed that no one can be found better equipped to study and estimate properly the conditions of modern factory and office life than the medical director whose chief concern is the well-being and safety of those employed in such work. Each industry is confronted by problems peculiar to its own

conditions of employment. These problems belong, primarily, to the industrial physician whose experience has already given him an intimate knowledge of the conditions that affect the health and safety of the employees in his own organization.

It is expected that the assembled information resulting from this study will form a worthwhile contribution to the question of industrial medicine and hygiene in this country where this investigational type of work has lagged behind a similar work in Europe. On the other hand the development of medical organizations in industrial work in America has far outrun a similar activity in European industry. With the completion of the work now under way by this committee, the health problems of major industrial groups in this country should be better appreciated than they are at the present time.

Medical Reserve Officers Ordered to Active Duty

—The following Medical Reserve officers have been ordered to active duty at the Presidio of San Francisco, California, for the period September 11-24, for a special course of instruction pertaining to the administrative management of large army hospitals:

Colonel James A. Mattison, Sawtelle, California; Colonel Archie C. Van Cleve, Portland, Oregon; Colonel Samuel E. Lambert, Spokane, Washington.

Lieutenant-Colonel Frank P. Gardner, Seattle, Washington; Lieutenant-Colonel Fredrick T. Harris, Seattle, Washington; Lieutenant-Colonel Raymond A. Akin, Sawtelle, California; Lieutenant-Colonel Horace M. Francis, Corvallis, Oregon; Lieutenant-Colonel Charles E. Mordoff, Oakland, California; Lieutenant-Colonel Chauncy M. Benedict, Salt Lake City, Utah; Lieutenant-Colonel Charles E. Butts, Spokane, Washington; Lieutenant-Colonel John E. McKillop, Los Angeles, California; Lieutenant-Colonel Newton G. Evans, Los Angeles, California.

Major Lynn C. Smith, Adin, California; Major William J. Hosford, Santa Cruz, California; Major John M. Henderson, Seattle, Washington; Major Robert T. Legge, Berkeley, California; Major Benjamin N. Wade, Portland, Oregon; Major Earle F. Ristine, Portland, Oregon; Major Edwin J. Barnett, Spokane, Washington; Major Byron Palmer, Ocean Park, California; Major Joseph Saylin, Venice, California.

Captain Roy M. Clarke, Los Angeles, California.

American Hospital Association to Meet on Pacific Coast

—It is with interest that the western hospitals have received the announcement that the American Hospital Association has chosen San Francisco for the meeting place of the 1928 convention.

In the past we have deplored the fact, repeatedly, that the Association did not come West for their meeting and we feel that the directors of the association realize at last that the Pacific Coast has much that is worth while to offer this national group.

From the standpoint of western hospitals, this convention will be a means of bringing the East and the West closer together. Ofttimes western hospital executives have gone all the way across the continent, only to find it extremely difficult to apply the eastern point of view to their problems. Now we will have the opportunity of the best that any hospital has to offer, presented in our own territory where local application can be made.

San Francisco and the bay district are outstanding in the efficiency of their hospitals. It is here that many of the real leaders in medicine, nursing and general health work are to be found. Not only California but the entire West, welcomes this opportunity for closer contact with others in hospital work. —*Western Hospital and Nurses Review*.

Safeguarding State Board Records

—The study of how to safeguard state board records has continuously aroused my interest throughout my thirteen years' stewardship as secretary-treasurer of the Board of Medical Examiners of the state of California and I am convinced that all executive officers of state medical examining boards are equally interested in a

study of this kind. The following are suggestions on how possibly to "block" imposition:

1. Require that a recent photograph of the applicant be affixed to every application and made a part of his statements under oath.

2. Require certified duplicate photographs for the purpose of sending to other sources if necessary, thus keeping the completed application in the home file.

3. Insist that each application be fully completed, and if for reciprocity make no indorsement when the applicant fails to affix his affidavit and his recent photograph. Also before making indorsement compare the data and photograph on the application from a sister state with the application in the files of the home state.

4. Issue no duplicates unless the request is supported by a recent photograph and affidavit of applicant.

5. Substantiate applicant's graduation by indorsement of the medical college. Satisfy yourself that the one who filed the application is the individual who graduated and is not an impostor. When a diploma has been lost or destroyed and medical college is extinct, greater diligence must be exercised in verifying credentials. If from foreign institutions, verification by correspondence with the medical college is of paramount importance. Also bear in mind that some foreign countries grant authority to practice without requiring the licentiate to be a graduate of a medical school. Do not confuse a foreign license to practice (called a diploma by all foreign applicants) with the diploma granting the degree "doctor of medicine" earned only after writing an approved thesis which often must be defended by open debate by the candidate for the doctor of medicine degree.—C. B. Pinkham, M. D.—*Federation Bulletin*.

University of California Doctor Asks State Public's Aid—All residents of central and southern California who suffered, even slightly, from effects of mussel poisoning during the recent epidemic, and who have not yet made a report of their cases, have been asked to write a letter of notification to Dr. Karl F. Meyer, director of the Hooper Foundation for Medical Research of the University of California, at Fourth and Parnassus avenues, San Francisco.

Such letters will aid greatly in an investigation now being carried on as to the extent and characteristics of the poison epidemic, he says.

Doctor Meyer asks that those who have felt the effects of such poisoning, either shortly before or shortly after July 15 from eating Pacific Coast shellfish send a record of the date on which the shellfish were gathered, directions as to how and exactly where they were obtained, and the name of the physician if one was called.

Preliminary tests conducted by the Hooper laboratories have disclosed that the poisoned condition of the shellfish arose probably from a sudden influx of indigestible food to which the mussels were unaccustomed. In order to further check this finding, and to establish as complete a record as possible for future protection of the public, it is desired to list every case of poisoning and to map every site from which the dangerous food was collected.—*U. C. Clip Sheet*.

MEDICAL ECONOMICS

A Follow-Up System in the Collection of Fees

In this issue editorial comment is made on the subject of fee collections and mention is made of a series of stickers and reminders, which were devised years ago, and which were printed for the members of the Los Angeles County Medical Association. The writer has used them in his own office from the time he arranged them years ago. It is a simple system which the office secretary carries on in regular routine, and which makes a minimum call on the physician's supervision.

The plan comprehends the sending of statements so that by the end of the sixth month, if the delin-

quent patient has given no indication of desire to pay, either in whole or in part, the account will then automatically be sent to a collecting agency. The collecting agency is told to endeavor to collect the account, so that, in the future, such type of patient will find it unprofitable to bring either himself or the same kind of friends to the office.

* * *

First Statement

The first statement is rendered as near after the first of the month succeeding that in which the services were rendered, as is convenient. It follows the usual form of all such statements.

⌘

Second Statement

This is the ordinary statement, no reminder being enclosed, the statement being sent at the beginning of the second month after the services were rendered.

It may be added that two forms of statements are printed. The first or memorandum statement which is sent out has printed thereon the following:

"Financial accounts, the sending of statements, and so on, are in charge of the office secretary. Statements are issued upon completion of services, and monthly."

⌘

After this first statement has been sent, a similar statement is used, except that in addition to the foregoing note the following is printed thereon:

"For your information, in case previous statements went astray in the mails, I would state that this is the _____ month we have mailed this statement.

Secretary."

⌘

Third Statement

This statement is rendered at the beginning of the third month after the services were rendered. Attached thereto is a sticker, printed in red, which is as follows:

*Our bookkeeper fails
to find your account
settled on our books
Please help him out.*



⌘

Fourth Statement

This statement is rendered at the beginning of the fourth month after the services were rendered. Attached thereto is a sticker, printed in red, which is as follows:

PAST DUE!

This Account has no doubt escaped your notice. Will you please favor us with a remittance by return mail and oblige?

⌘

Fifth Statement

With the fifth statement goes a red sticker, as follows:

**THIS ACCOUNT
IS PAST DUE.
PLEASE REMIT.**

⌘

Sixth Statement

With the sixth statement goes a card, about five by three inches, printed on ordinary stock paper, in black or red ink, reading as follows:

Regarding Your Past-Due Account

Our records show that several statements and re-

Note—The fifth, sixth, and seventh statements can now be sent at intervals of ten, fifteen, or thirty days, according as the physician thinks best.

mindings have been sent you regarding the enclosed statement.

If your circumstances have made it impossible for you to pay the amount due, kindly write us promptly to that effect. Our office will then endeavor to extend all possible courtesies.

You appreciate, we are sure, that physicians, like other citizens, must pay their bills promptly. They can only do so, however, when their own clients in turn pay them promptly for such professional services as may have been rendered.

A check to cover your account, which is now considerably overdue, will be appreciated.



Seventh Statement

With the seventh statement goes a similar card, on which is printed:

Final Notice

In practically all businesses the custom which is generally followed with overdue accounts is to send such to a collecting agency.

Our bookkeeper has nothing in the records of the office to show when you intend to pay the enclosed account. Perhaps the previous statements and reminders may have been overlooked or ignored.

Following the rule of this office, this overdue account will be sent to the collecting agency within ten days if arrangements for its settlement are not made prior to that time.

This collection bureau method is disagreeable to us; and we believe, also to you. By promptly sending your check all this can be avoided.

When an account is sent to the collecting agency that organization takes full charge of it thereafter.

* * *

When the above series of statements have been sent, and the patient has not been heard from, it may be assumed that it is a very proper account for a collecting agency and is forwarded to one such.

All collecting agencies have their own methods, but they nearly always make it somewhat disagreeable if the person owing the money does not pay. Patients who do not pay are undesirable patients in private offices, and should not be permitted to rob physicians of time and energy. On the other hand patients sometimes are treated who suffer from temporary financial embarrassment, and such patients should have an opportunity to liquidate their indebtedness without undue hardship. The plan above devised, when used as a routine system, works to good advantage for both classes of patients. The number of accounts which go to the collecting agency is not very great, and the elimination of the undesirable patients is quite effective. A slip is usually clipped to the history card on which are noted the dates on which the statements were sent out.

READERS' FORUM

Poliomyelitis in California—A letter from the director of the State Board of Health.

August 4, 1927.

To the Editors:

There is an epidemic of poliomyelitis in California at this time, and many physicians have asked for convalescent serum for the treatment of cases of poliomyelitis. Since experienced observers feel that better results are obtained with the use of pooled convalescent sera, it seems advisable to provide a means of collecting and distributing this serum through a central station where the blood will be tested and pooled.

Dr. K. F. Meyer of the University of California Medical School, San Francisco, is willing to supply sterile containers for the collection of blood from patients convalescing from poliomyelitis whose temperatures have returned to normal.

We ask your cooperation. Requests for the sterile containers may be sent to the Division of Epidemi-

ology, State Department of Public Health, Berkeley, or directly to Dr. K. F. Meyer. Whenever any physician in your locality wishes convalescent serum, there will be available for him as much serum as may be on hand at that time. The amount of blood available for treatment of cases will depend upon the amount which can be collected. For this reason we urge your cooperation. From fifty to one hundred cubic centimeters of blood from a patient is desired. Inasmuch as the sera are to be pooled, smaller quantities will be appreciated.

Yours very truly,

WALTER M. DICKIE, M. D.,
Director.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, *Secretary*

The 1927 directory published by the Board of Medical Examiners, recently distributed, contains considerable interesting information showing that there is a total of 9745 licensed practitioners whose certificates under the Medical Act are in good standing. Of this group 8238 licentiates are located in California and are divided into 7699 physicians and surgeons; 45 naturopaths; 134 drugless practitioners; 243 chiropractors, and 117 midwives. There is also printed a survey of the various cities and towns in California where an occupational tax or ordinance is in effect.

The 1927 amendments to the Medical Practice Act became effective July 29. Attention is drawn to the prohibition of the ambulatory treatment of narcotic addicts provided in the amendment to Section 14. The reciprocity feature of the law has been changed to require an oral examination on an application based upon a license issued by a sister state which is dated ten or more years before the filing of the application in California. In other words, direct reciprocity is available only to those who have been licensed in another state within a ten-year period of the filing of the application in California.

At the meeting of the Board of Medical Examiners held in San Francisco, June 28, 1927, the reciprocity license heretofore issued to Walter R. Anderson, M. D., of Portland, Oregon, entitling him to practice as a physician and surgeon in the state of California, was revoked.

The organization of a new university is forecast in an article published in the Los Angeles *Examiner* of July 23, 1927, relating that an International University of Astrology in southern California will be the outgrowth of the first convention of the National Astrological Association. "We are out to stop the fakir," A. B. Hasting said yesterday. "We must stop them. Astrology is a dignified science and must be put on the same basis as medicine, law, and other sciences." . . . The principal speaker last night was Dr. John H. DeQuer, osteopath, who spoke on "Astrology as Light on Obscure Medical Cases." The records show that John H. DeQuer was reported to have paid a fine of \$100 in the municipal court in Los Angeles on February 17, 1926, the prosecution being conducted by the Board of Osteopathic Examiners.

J. E. Baker, M. D., reported as having been arrested in Corona May 10, 1927, and thereafter having been sentenced to a \$200 fine and twenty days in jail for violation of the state poison law, has been cited to appear before the Board of Medical Examiners at the October, 1927, meeting to show cause why his license as a physician and surgeon in the state of California should not be revoked.

According to the San Francisco *Bulletin* of July 20, 1927, Dr. Adalbert B. Berk, New York skin specialist,

died in the Fairmont Hotel, San Francisco, of a heart attack on July 18.

Following a trial in which defense evidence was introduced to show the defendant had been made the victim of a "spite" move by police, a jury in the court of Municipal Judge Ambrose today acquitted Dr. Fred J. Barnet, Los Angeles physician, who was charged with possessing and selling intoxicating liquor. . . .—*Los Angeles Herald*, May 27, 1927.

According to the report of our Special Agent Carter, William E. Brown, D. C., licensed as a drugless practitioner, and also licensed under the Chiropractic Board, was arrested on July 28, 1927, in Los Angeles, charged with violation of the Medical Practice Act, it being alleged that he not only performed operations, but also wrote prescriptions for medicines. He is reported to have pleaded guilty and to have been released on \$250 cash bail.

An alleged stock swindling scheme in which prominent Modesto business men are reported to have been mulcted out of \$54,000 is laid to W. D. Cowan, secretary of a hospital association, according to the warrant for his arrest issued here today. . . . In addition to the charge of obtaining money under false pretenses, Cowan will also face charges of practicing medicine without a license, Harry G. Henderson, representative of the State Board of Medical Examiners, announced here today. . . .—Press dispatch dated Modesto, June 14, in the *San Francisco Examiner* of June 15, 1927.

The State Industrial Accident Commission today appointed Dr. Michael Creamer assistant state medical director. . . . His appointment was made possible by the recent death of Dr. H. E. Southworth, who held the position for many years. The duties of the office consist of advising the Industrial Accident Commission on the difficult medical questions in the cases that come before that body.—*Los Angeles Express*, May 27, 1927.

A recent decision handed down by the Second District Court of Appeals to the effect that in counties having the new municipal courts, said courts have exclusive jurisdiction not only in the city, but in the entire county, in all civil cases involving less than \$1000 and in all criminal misdemeanors, adds more difficulties to the enforcement of law, particularly the Medical Practice Act.

According to the report of our Special Agent Carter, Cora L. Compton, said to be a Chirosthesian, and advertising herself as a "vibro-therapist," was recently charged with violation of the Medical Practice Act in Pasadena, it being alleged that for six months she treated a patient for tumor, saying that she could dissolve the tumor by magnetic vibration. It is further related that "she stated to patients that she belonged to an organization and paid money every year for protection"—evidently referring to the Chirosthesian Church.

The act regulating the practice of dentistry in California has been strengthened by a bill introduced by Senator Inman of Sacramento, and signed by Governor Young, which increases the penalties for fraud in connection with dental certificates and other law violations by dentists. The law makes it a prison offense to sell, alter, or counterfeit a dental degree or diploma, according to the *San Francisco Examiner* of May 24, 1927.

A citation has been issued calling Carleton W. Faull, M. D., before the Board of Medical Examiners at the October, 1927, meeting to show cause why his license to practice in the state of California should not be revoked. It is necessary for the board to serve

the citation by publication, inasmuch as following Doctor Faull's reported activities with two street fakirs at 1006 Broadway, Oakland, and their nostrums called "Zan" and "Arlo Balm," he disappeared, since which time his whereabouts have not been known.

A citation has been issued calling Homer J. Flinn, M. D., before the board at the October, 1927, meeting to show cause why his license to practice in the state of California should not be revoked based upon the record of conviction of violation of the Harrison Narcotic Act; also, incarceration in the state penitentiary at Walla Walla, Washington, on a charge of grand larceny, to wit, issuing fraudulent checks. Doctor Flinn formerly practiced in Los Angeles, Calexico, and Oakland, California.

Dr. W. W. Fitzgerald, a prominent physician of Stockton until a decade ago, was adjudged entitled to receive benefits from the Globe Indemnity Company of New York as the result of total disability, by the Third District Court of Appeal in an opinion handed down today. Following an attack of influenza Doctor Fitzgerald contracted chronic nephritis and was forced to retire from active practice in his profession in 1918. The insurance company paid him benefits at the rate of \$50 per week until 1922, at which time it refused further payments. Thereupon Doctor Fitzgerald brought suit to continue the benefits. . . .—*Sacramento Bee*, August 3, 1927.

Dr. Davis Grisso's fight for restoration of his license to practice in California had been lost today when the District Court of Appeals upheld the Superior Court of Alameda County in refusing to review the case. Doctor Grisso lost his license after the coroner's jury declared him guilty in the death of Mrs. Theresa Soares, wife of an Oakland truck driver. He was freed of the death charge when the husband refused to prosecute, according to the *Oakland Tribune* of June 22, 1927. The records of the Board of Medical Examiners show that the license of Doctor Grisso was revoked October 18, 1923, since which time by a series of court actions he has endeavored to have the revocation set aside. Various entries regarding this case have been published in "News Items."

Assistant District Attorney E. S. Mitchell this afternoon dropped a bombshell into the defense of the trial of Dr. J. A. Hadley when he produced a couple of books of canceled narcotic prescriptions of Dr. J. A. Hadley filled by one drug store in Arcata showing that in the year from April, 1926, to April, 1927, Doctor Hadley had given out 586 prescriptions known in the profession as "44" especially for women, and in all, the diagnosis which the law requires to be shown on prescriptions containing narcotics is given as uterine troubles. . . . In a cupboard in Doctor Hadley's office had been found 150 of the same prescriptions.—*Eureka Standard*, July 1, 1927.

Dr. James A. Hadley was acquitted of the charge of murder against him at midnight last night on the fifth ballot taken by the jury. The first poll stood ten to two for acquittal, and the second and third ballots showed no change. One of the two for conviction switched to acquittal on the fourth ballot, the vote standing eleven to one. The fifth ballot taken at midnight showed a unanimous vote for acquittal. . . .—*Eureka Standard*, July 9, 1927.

Having served approximately a year at Leavenworth Penitentiary for alleged plotting against his estranged wife by sending her poisoned candy through the mail, Dr. Franklin E. Kerr, former Garden Grove physician, has appealed to President Coolidge for clemency, it was learned here today. . . .—*Santa Ana Register*, July 21, 1927.

The State Board of Medical Examiners restored the license to practice medicine to Charles R. Knox,

seventy-year-old physician of Los Angeles yesterday, with the warning that five years' probation would be given him to prove his ability to obey the state laws regulating medicine. Knox's license was taken away from him after he allowed "Gypsy Dan," vendor of patent medicine to use his name and license.—*San Francisco Chronicle*, July 1, 1927.

At a regular meeting of the Board of Medical Examiners held in San Francisco, June 28, 1927, the license heretofore issued to Frederick K. Lord, M. D., entitling him to practice as a physician and surgeon in the state of California was revoked on a charge of continuing to practice following the action of the board on March 9, 1926, suspending Doctor Lord's license for a period of one year.

The local office of the justice of the peace has received a letter from police officials of Honolulu seeking information about a man by the name of Doctor McAdory, who it was claimed was tried in the Burbank Justice Court in 1926 on the charge of selling narcotics. The doctor is being tried on a similar charge in Honolulu, and the prosecution is desirous of getting as much of his past history from the standpoint of his narcotic-selling proclivities as possible (*Burbank Review*, June 18, 1927). Dr. Robert J. McAdory's license to practice as a physician and surgeon in the state of California was revoked July 15, 1926, based upon his narcotic record. "News Items," May, 1926, page 676; August, 1926, page 248.

Dr. B. F. McElroy, widely known San Francisco physician and surgeon, was yesterday appointed medical director of the Market Street Railway Company.—*San Francisco Chronicle*, July 7, 1927.

A recent report to the Board of Medical Examiners relates that an individual named S. D. Malchenson, alleged to be a licensed physician and surgeon of Cumberland, Maryland, recently was reported as obtaining a considerable sum of money from Mollie Newkrug, licensed chiropractor, for the purpose of filing an application for a license to practice in California and equipping his office. Information from Maryland relates that this individual is not a physician and surgeon, nor is he licensed in that state, but is reported by the chief of police of Cumberland, Maryland, to be a physiognomist.

According to the report of our Special Agent Carter, M. E. McElle recently pleaded guilty to a charge of violating the Medical Practice Act in Los Angeles and was given a sentence of sixty days in the county jail, suspended for two years on condition that he does not violate the Medical Practice Act during the time of probation. He claims to be a licensed physician in Canada, and according to reports was last year fined \$50 for practicing chiropody in Seattle without a license. His method of procedure is unique, it being claimed that he removes corns by placing on the foot some salve which he prepares by inserting small pieces of violin string, later taking the salve off the foot, showing the violin strings to the patient, and claiming them to be the roots of the corn removed, charging, it is alleged, as high as \$18 per foot treated in some cases.

According to the *San Francisco Chronicle* of July 9, 1927, Isadore S. Millstone, a sixty-eight-year-old physician and surgeon of Cleveland, Ohio, seeking to improve his health, is alleged to have walked from Cleveland to Los Angeles.

Adele Millar, whose beauty specialist advertisements are well known to the readers of the front page of our Sunday paper advertisement section, was recently reported to have pleaded guilty in Los Angeles to a charge of violation of the Medical Practice

Act and sentenced to pay a fine of \$100 or serve sixty days in the city jail, said sentence being suspended for a period of two years on condition that she does not violate the State Medical Practice Act during that period.

Dr. Robert C. Montgomery, physician of San Juan Capistrano, who was indicted by the San Diego County grand jury several weeks ago on a charge of perjury, will not have to stand trial in the Superior Court, it was decided yesterday, when on motion of the district attorney the case against the physician was ordered dismissed and stricken from the records. Bond made by Doctor Montgomery after he had been detained in jail for almost two days was declared exonerated. . . .—*San Diego Union*, July 3, 1927.

According to the *San Francisco Chronicle* of July 10, 1927, Dr. Eldridge Roy Morlan has filed suit in the Superior Court against the Board of Medical Examiners to restore his license revoked by the board June 28 following the hearing based upon alleged illegal operations. Doctor Morlan asserted he has a number of cases that he alone is familiar with and that his advice is needed; that the decision of the state board was based upon insufficient evidence, and that he was not given ample opportunity to answer the charges. The records show that a citation was originally issued in December of 1926; hence, Doctor Morlan had the period from that date until June 28 in which to prepare his defense.

According to the *San Francisco Bulletin* of July 25, 1927, depositions of Los Angeles passengers on the Panama-Pacific liner *Venezuela* were to be taken to substantiate the theory that Dr. Stewart Phelps, a passenger, had met accidental death which caused his disappearance from the steamer, June 29, 1927.

Burton C. Platt, referred to as a "dietic philosopher," recently was reported to have pleaded guilty in Riverside on the charge of violation of the Medical Act and sentenced to pay a fine of \$250, which sentence was suspended on condition that he does not again violate the Medical Practice Act in Riverside County for a period of two years. Previous "News Items," Vol. 26, page 387.

The reciprocity application of Matthew Gault Platt was denied by the Board of Medical Examiners following his plea of guilty to a charge of violating the Medical Practice Act, the report showing that Doctor Platt had been given a sixty-day jail sentence by Judge Frank G. Swain of Los Angeles which was suspended for two years on condition that he refrain from any infraction of the medical laws in this state.

Alanson M. Pond, M. D., was found guilty following a hearing by the Board of Medical Examiners June 29, 1927, and the imposition of penalty was deferred until the October meeting. Previous articles in Vol. 26, pages 387 and 540.

Failure to report a case of contagious disease to the city authorities caused Drs. Carl Schultz, O. M. Richardson, and S. F. Sullivan \$100 each when they appeared before Municipal Judge Frederickson today . . . (*Hollywood News*, June 16, 1927). The records of the Board of Medical Examiners show Doctor Schultz, licensed naturopath, while Doctors Richardson and Sullivan are reported as graduates of chiropractic schools.

Dr. Woodruff Sheppard, Pasadena surgeon, yesterday addressed the delegates to the First National Astrological Association in session in the Hollywood Chamber of Commerce auditorium on the subject of "Surgical Cases with Astrological Associations." "A patient should never be operated upon when the part affected is under the moon in that period," the speaker

declared. "If such a situation exists, the patient will have trouble in recovery, but if the operation is withheld until the danger period passes, astrologically speaking, chances are that recovery will be rapid" (*Los Angeles Examiner*, July 22, 1927). There is no record of an individual named Woodruff Sheppard licensed under the Medical Practice Act.

F. S. Shinozaki, who pleaded guilty Monday to practicing medicine in Vacaville without a state license, was fined \$100 yesterday by Judge Edward Butler, but released on probation on condition that he would not within two years practice medicine within this state. Shinozaki has had offices in Vacaville, where he has been dealing in some sort of healing in violation of the Medical Act.—*Sacramento Bee*, July 28, 1927.

Dr. William B. Shore returned from San Francisco this morning where he was put on a year's probation by the Board of Medical Examiners for his conviction here in January on a charge of selling liquor. The board found him guilty of "moral turpitude." Doctor Shore will resume his practice here (*Ventura Post*, July 1, 1927). Doctor Shore has evidently left Ventura, as inquiries have come to the board as to his present whereabouts.

The result of an alleged illegal operation brought Mrs. Martha Signor of Santa Monica into Judge Albert Lee Stephen's court for arraignment on the charge of murdering Mrs. Snyder Rangel, 30. Mrs. Rangel died after the operation was performed by Mrs. Signor, a nurse, it is charged. . . —*Los Angeles Recorder*, July 11, 1927.

Special Agent Carter relates the recent arrest in Los Angeles of William Marcus Simpson, who calls himself the "king of drugless physicians," on a charge of violation of the Medical Practice Act, the complaining witness relating that Simpson had charged him \$10 for a treatment which consisted of running his hands up and down on each side of the patient. Mr. Carter relates "the recent conviction and fine of this 'king of drugless physicians,' as he terms himself, evidently was of little effect, and if we succeed in apprehending him this time will endeavor to obtain a straight jail sentence for him."

At the June meeting the Board of Medical Examiners restored the license of Clark S. Smith and placed him on probation for a period of five years.

Mystery continued yesterday to shroud the strange disappearance of Charles Stein, Bellflower physician, who has not been seen since Friday at 2 p. m., when he left his office to attend a patient. . . —*Los Angeles Times*, June 26, 1927.

The felony trial of Dr. Walter J. Sullivan, Hollywood physician, involved in the Raymond-Kelly-Mackaye fatal love triangle, yesterday was under two months' delay. . . —*Los Angeles Examiner*, July 27, 1927.

Dr. P. M. Thomas, well known as a ship's surgeon here, was held in jail in Sacramento today accused of passing a \$100 bogus check on the Sacramento Hotel. He lives at 405 Taylor Street.—*San Francisco Bulletin*, July 6, 1927.

Phillip Thomas, claiming to be a physician of 2533 Van Ness Avenue, was held by police today on a charge of larceny. Police searching guests at an Ellis Street restaurant found an earring of Marguerite Gallagher, 1423 Sacramento Street, in his possession.

It had been in her purse a few moments earlier—*San Francisco Bulletin*, July 22, 1927.

On June 28, 1927, the Board of Medical Examiners found Irving L. Ward, M. D., guilty following a hearing of charges of habitual intemperance, and placed him on five years' probation. Doctor Ward was called before the board on a similar charge in October, 1919.

Dr. Darrington Weaver, colored physician, witness at the trial of M. B. Sheffield, was exonerated today of a contempt of court charge. The complaint was brought against Doctor Weaver because he failed to appear when subpoenaed as a defense witness. Doctor Weaver explained he had been unable for financial reasons to make the trip back to Los Angeles after he had gone back to San Francisco to obtain additional witnesses.—*Los Angeles Record*, July 27, 1927.

On June 28, 1927, Walter L. Wentzel, M. D., was found guilty following the hearing of charges based upon his narcotic record, and the imposition of penalty was deferred to the October meeting.

Attention of the board having been called to the recent advertisement in one of our San Francisco papers relating that F. O. Westfall was conducting medical baths, vibrating and magno-treatments at 212 Leavenworth Street, an investigation was made disclosing that although the licensed F. O. Westfall was a man, the individual using his name at the address given was a woman who, according to the report of our investigator, claimed to be a graduate of Northwestern University Medical School and to have been licensed in California by written examination. Following her arrest on a charge of violation of the Medical Practice Act, she admitted that the name used by her was fictitious.

An individual posing as Dr. C. C. Wood has recently been reported as writing bad checks on the Southwestern Trust and Savings Bank of Los Angeles. He is described as a fluent talker, gives the appearance of having been dissipating heavily, black hair, uses medical terms fluently, weight about 145, height about five feet seven. His identity has not as yet been established.

Dr. Maud Wilde, well-known children's specialist of Los Angeles, will hold conferences with mothers all day Friday, June 24, at Educational Center, Bardsdale . . . (*Santa Paula Chronicle*, June 22, 1927). The records of the Board of Medical Examiners do not show anyone by the name of "Dr. Maud Wilde" licensed to practice in the state of California.

On June 28, 1927, the Board of Medical Examiners revoked the license of Willie E. Williams of Los Angeles, following a hearing based upon a charge of alleged illegal operation.

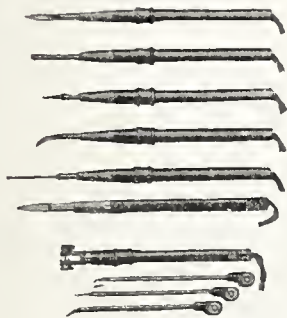
Landscape Development Is Planned at U. C. L. A.—Landscape development plans for the new Westwood site of the University of California at Los Angeles are rapidly assuming definite form through the activities of Prof. John W. Gregg, landscape architect, at present a member of the Summer Session faculty at Los Angeles.

Professor Gregg, who is head of the division of landscape design at the University of California at the present time is engaged in drafting plans for the subdivision of approximately eighty-five acres of land on the new campus which is to be developed as a faculty residential community.

The character of this eighty-five-acre tract and its location in relation to the rest of the campus and surrounding territory will make it possible, he says, to develop it into a beautiful home site for members of the U. C. L. A. faculty.—*U. C. Clip Sheet*.

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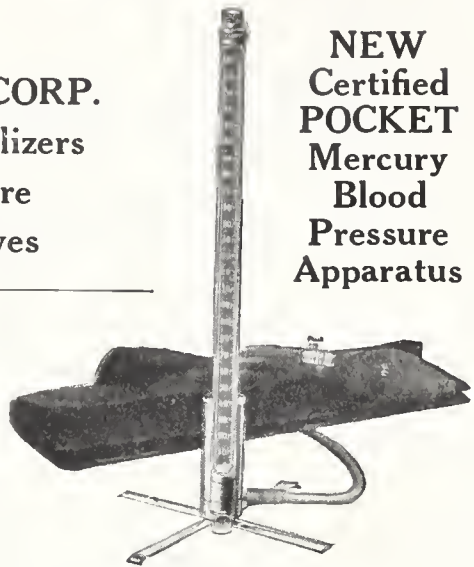
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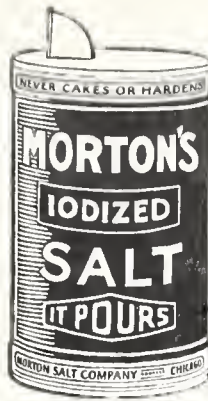
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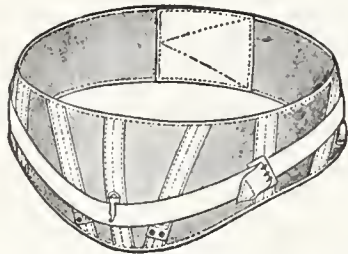
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Promise me that my chart will say:
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A carcinoma's seldom fun;
It's coarse to die of rabies;
It's not, and never has been done,
To die of itch or scabies.
The Potter's field is overrun
With men who died of tabes.
I'd hate to waste my dying breath
On tapeworms or anemia.
Only a rabbit-fancier's death
Is septic tularemia.
Glanders would seem to mean that I
Lived close to horse or brute.
Gleet or paresis would imply
Loose friends of ill repute.

Polycythemia lays its hand
On but a chosen few.
Painless but fatal to that band,
Red-blooded men and true.
Polycythemia has a sound
Ear-filling, soul-compelling.
So when they plant me in the ground
And when the organ's swelling
Oh, Doctor, when my folks all sing:
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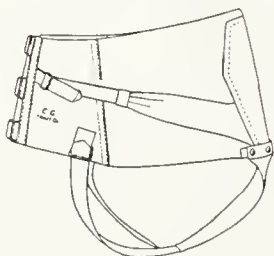
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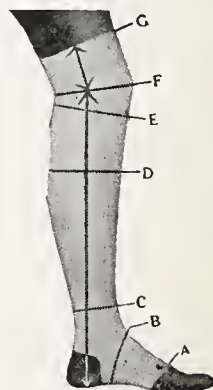


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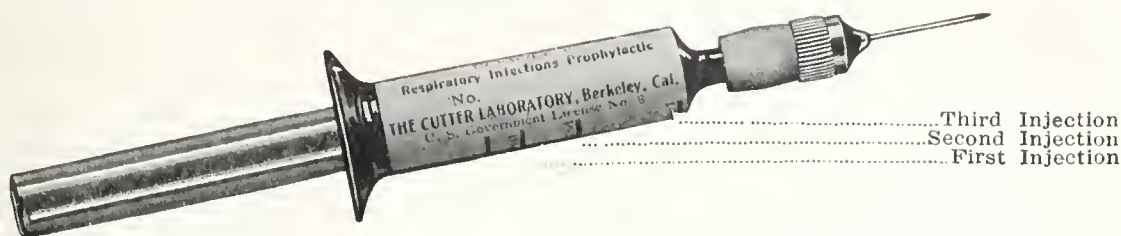
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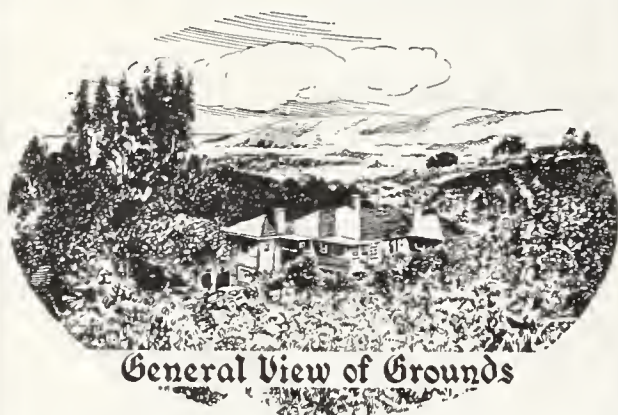
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The exhibition, which covers practically the entire ground floor of the Art Center, shows the tremendous handicaps under which the blind labor, the extent to which blind persons—from childhood on to old age—have succeeded in overcoming these handicaps in order to secure an education or to become at least partially self-supporting, and finally the exhibit of the National Committee for the Prevention

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Park Sanitarium

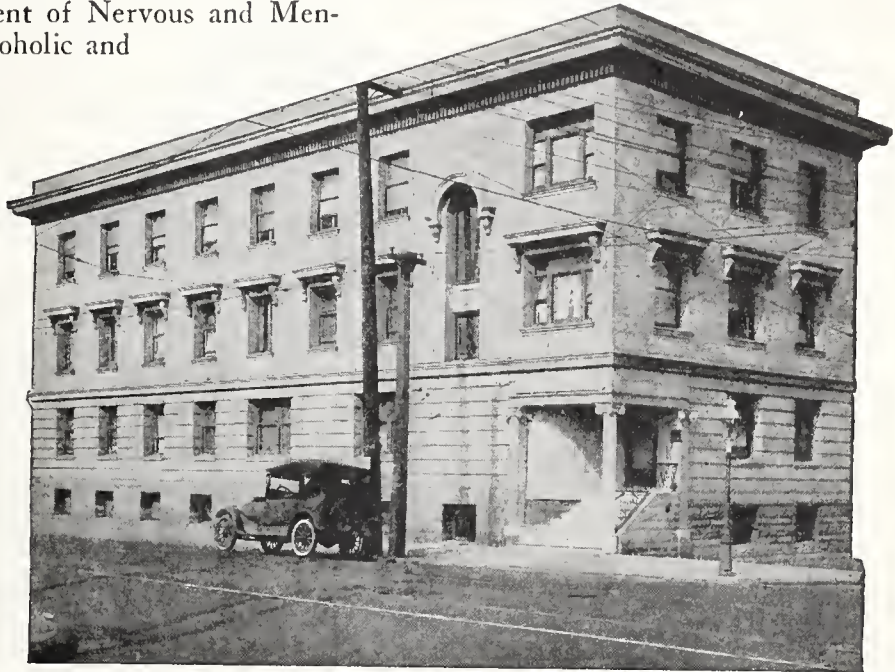
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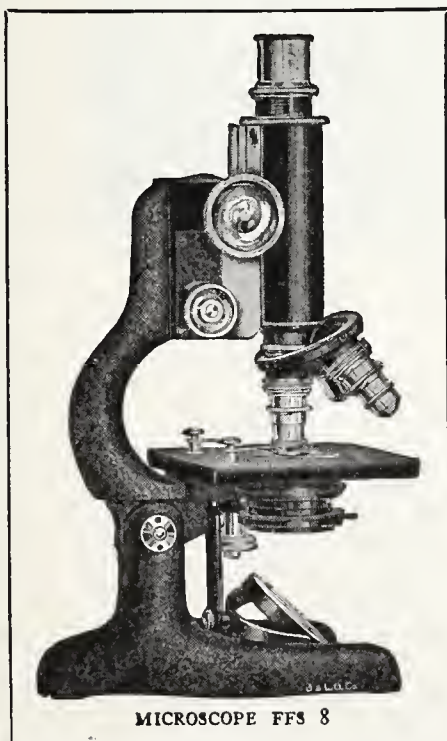
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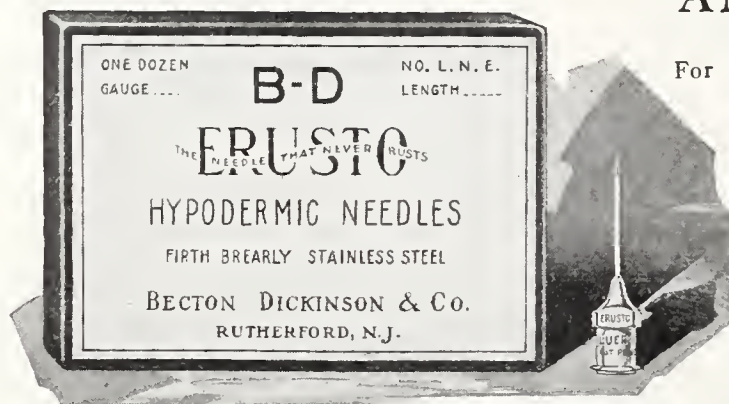
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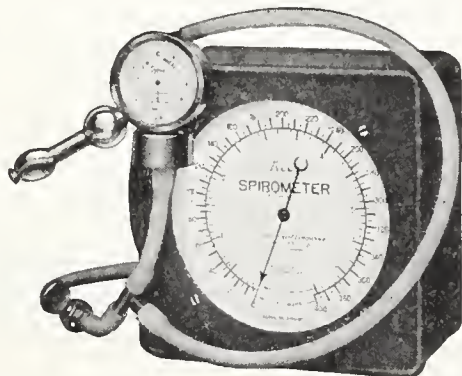
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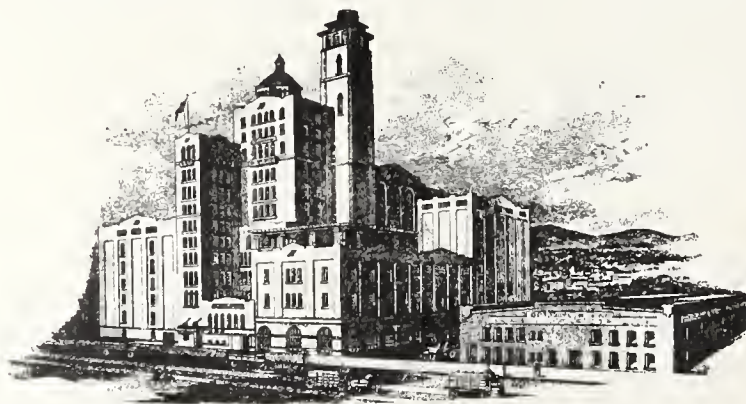
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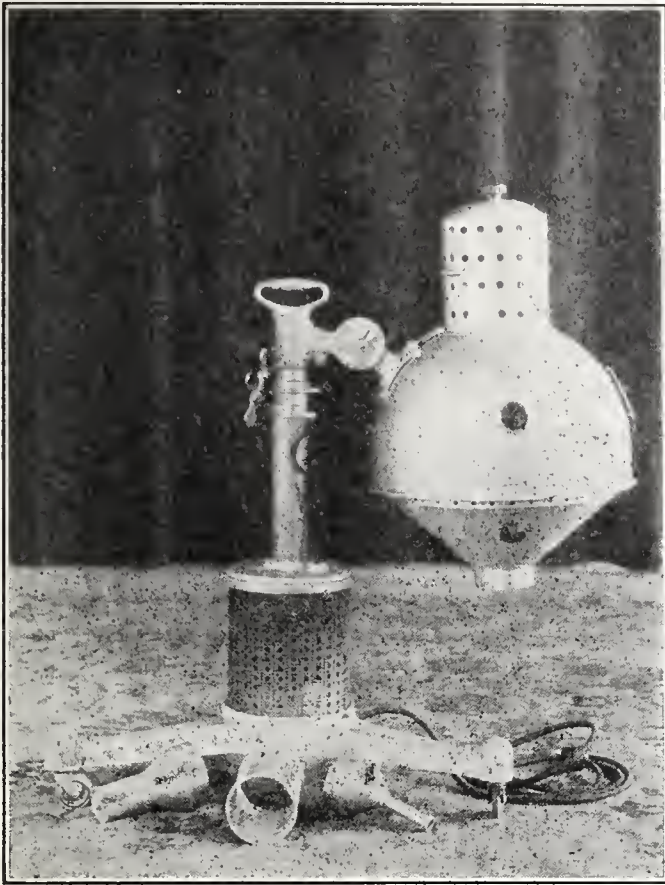
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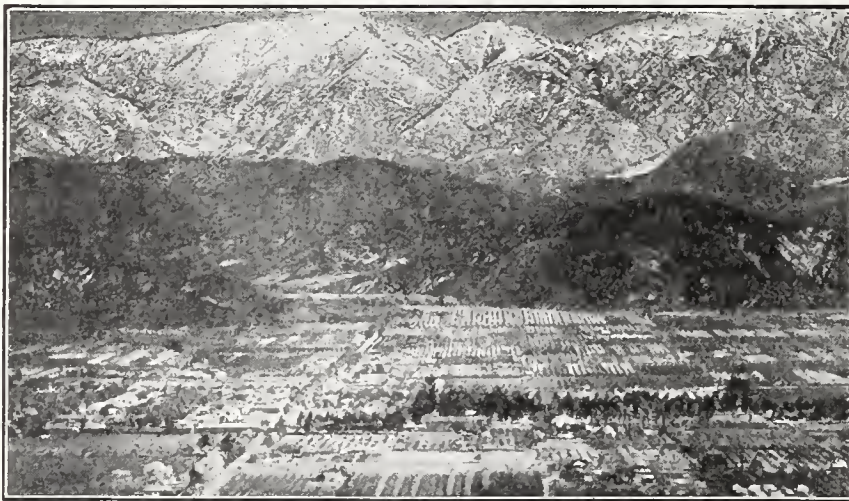
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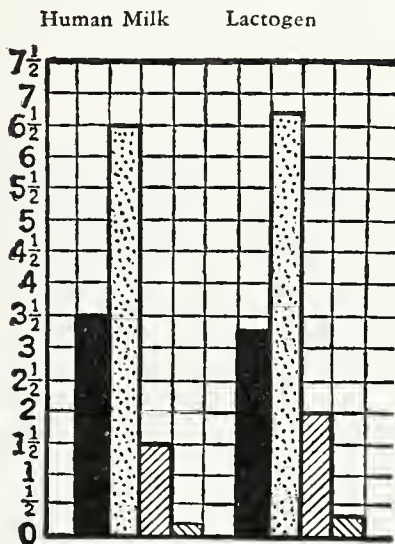
Because its analysis corresponds closely to that of normal human milk.

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—DR. HOLT, Page 178.

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—DRS. MCLEAN and FALES, Page 162.

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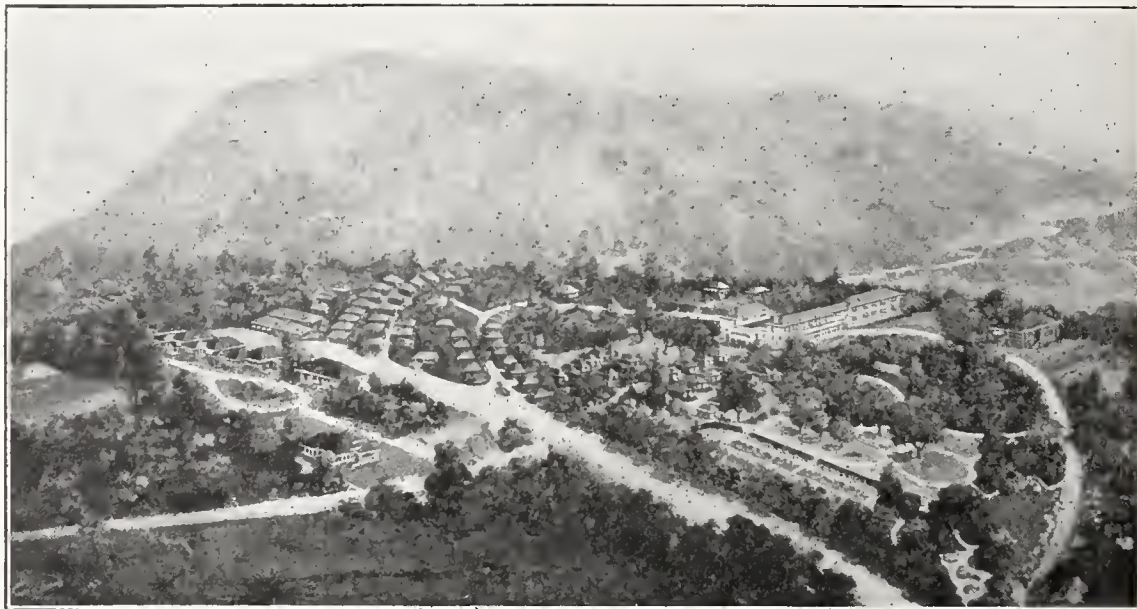
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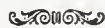


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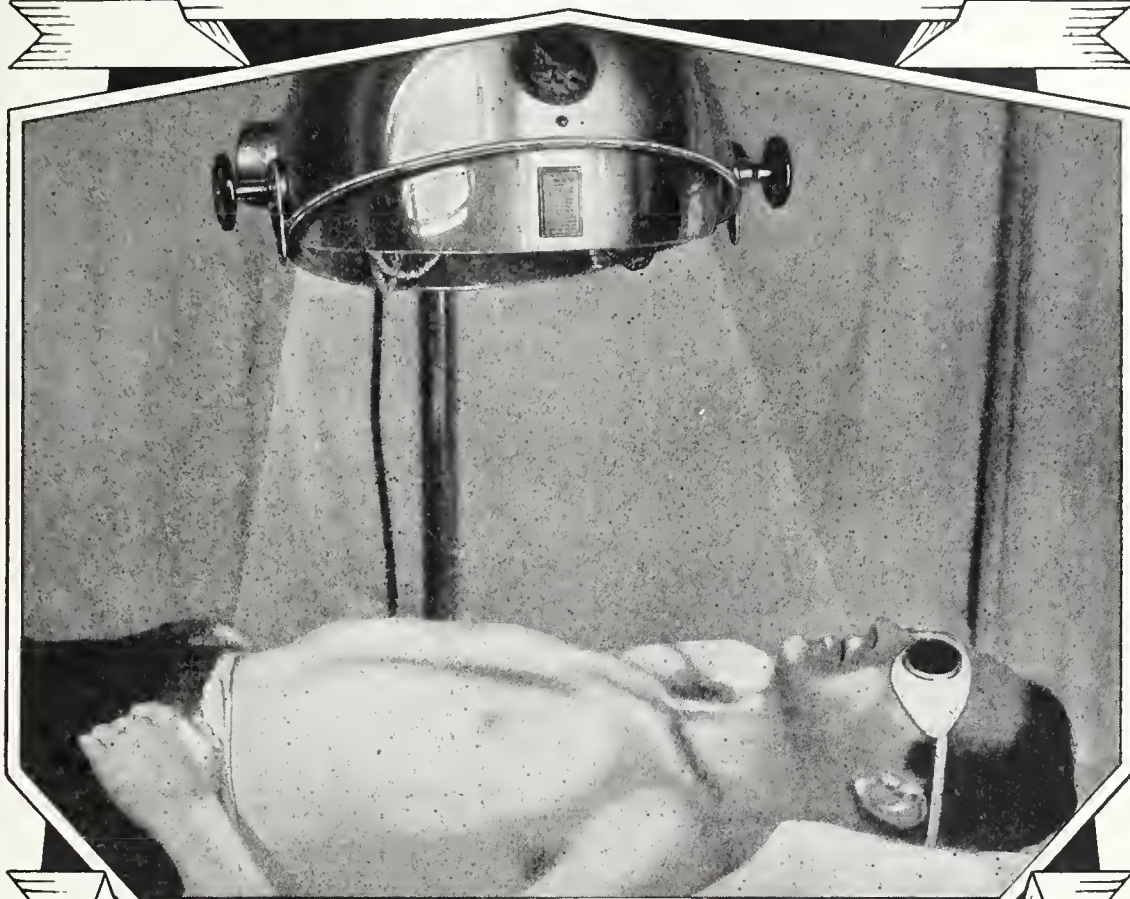
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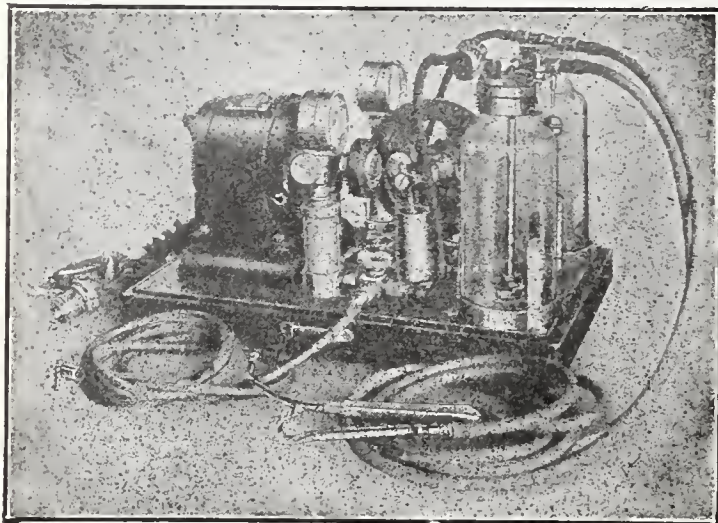
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New and Nonofficial Remedies

(Abstracts from reports of Council on Pharmacy and Chemistry, A. M. A.)

Note.—These do not represent all of the actions of the Council, but they do represent those remedies manufactured by firms who cooperate with California and Western Medicine in its advertising columns, and thereby with the physicians in California.

In addition to the articles previously enumerated, the following have been accepted:

Crotalus Antitoxin—An antitoxic serum prepared by immunizing animals against the venom of snakes of the crotalus family. Evidence has accumulated to show that the venom of certain snakes may be neutralized by the employment of a serum obtained from animals that have been injected with venom from a snake of the same family. Crotalus antitoxin is used to neutralize the venom injected by the bite of members of the crotalus family. The serum is administered intramuscularly, subcutaneously, and in certain cases it may be administered intravenously.

Antivenin (Nearctic Crotalidae)—North American Anti-Snake-Bite Serum—An antitoxic serum prepared by injecting horses with venoms from serpents of the North American species of the family *Crotalidae* (Rattle Snake, 75 per cent; Copperhead, 12½ per cent; and Water Moccasin, 12½ per cent). It is claimed to have neutralizing effect against the venom of the species represented. The serum is marketed in syringes containing 10 cc. (a single dose). H. K. Mulford Co., Philadelphia.—*Jour. A. M. A.*, July 2, 1927, p. 29.

Erysipelas Streptococcus Antitoxin (Lederle) Unconcentrated—An erysipelas streptococcus antitoxin (New and Non-Official Remedies, 1927, p. 337), prepared by immunizing horses by subcutaneous injections of the toxic filtrate obtained from broth cultures of the erysipelas streptococcus, or by intravenous injections of cultures of the erysipelas streptococcus obtained from typical cases of erysipelas. It is administered in early cases of moderate severity in dosage

of 12 cc. intramuscularly; in severely toxic and late cases, 36 cc. to 48 cc. intramuscularly, or 24 cc. to 36 cc. intravenously. This product is marketed in syringes containing 12 cc. Lederle Antitoxin Laboratories, New York.—*Jour. A. M. A.*, July 30, 1927, p. 373.

Lederle Antitoxin Laboratories—Erysipelas Streptococcus Antitoxin (Lederle) Unconcentrated.

"Viscose" for Varicose Veins—The Viscose Company, Los Angeles, California, sells a small amount of a glue mixture with a few rolls of gauze bandages for \$30. This combination is sold as a means of reducing varicose veins. Apparently the Viscose Company also gives medical treatment to those who will come to its headquarters. The treatment consists of the mixture "Viscose," which is melted, applied to the leg and covered with gauze; more "Viscose" and gauze are applied and finally all covered with a paper bandage. An analysis of "Viscose" in the A. M. A. Chemical Laboratory showed it to be essentially a mixture of zinc oxide and glycerin in a gelatine base. The Laboratory pointed out that the name is misleading, as viscose is a well-recognized chemical substance.—*Jour. A. M. A.*, July 16, 1927, p. 225.

Koch Cancer Foundation—On September 22 and 23, according to an announcement just issued, the second annual convention of the Koch Cancer Foundation will take place in Chicago, one of the meetings being a joint session with the American Association for Medico-Physical Research. The American Association for Medico-Physical Research was organized in 1911 by the outstanding quack of the century, Albert Abrams. It is stated that some three hundred phy-meeing with the distinguished members of the American Association for Medico-Physical Research. The Koch representatives should add tone to this sicians will gather to discuss the use of the Koch remedy in cancer. But one meeting is to be a joint remarkable assemblage.—*Jour. A. M. A.*, July 23, 1927, p. 296.

(Continued on Page 440)



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TRUTH ABOUT MEDICINES

(Continued from Page 438)

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(Continued on Page 444)

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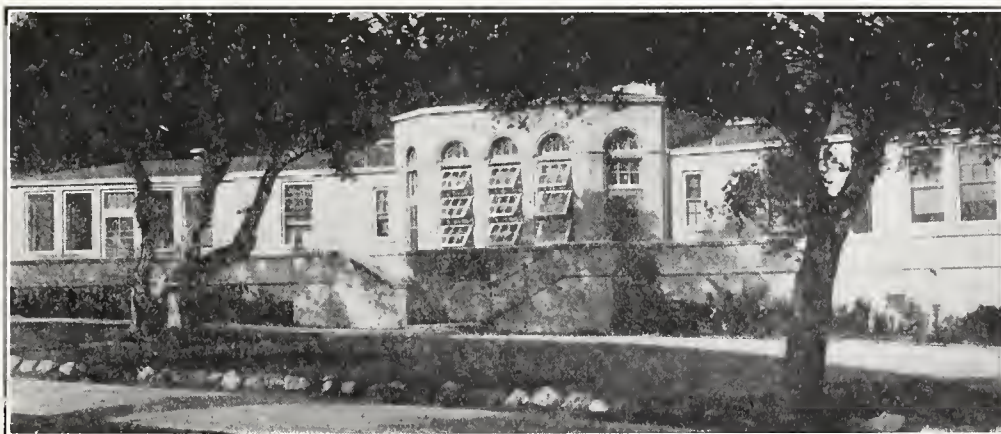
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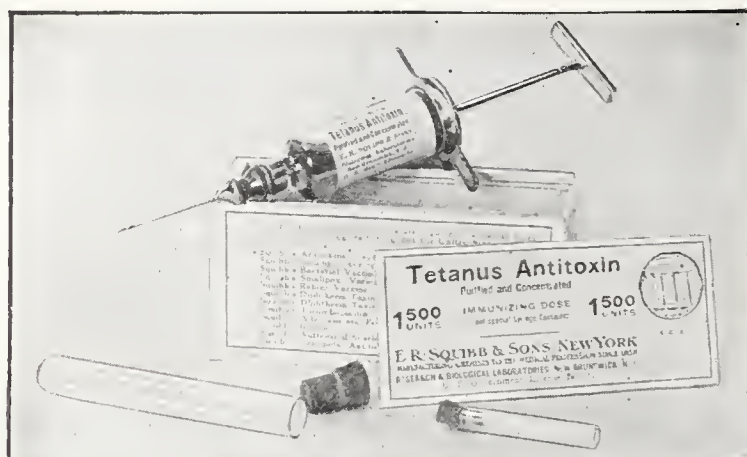


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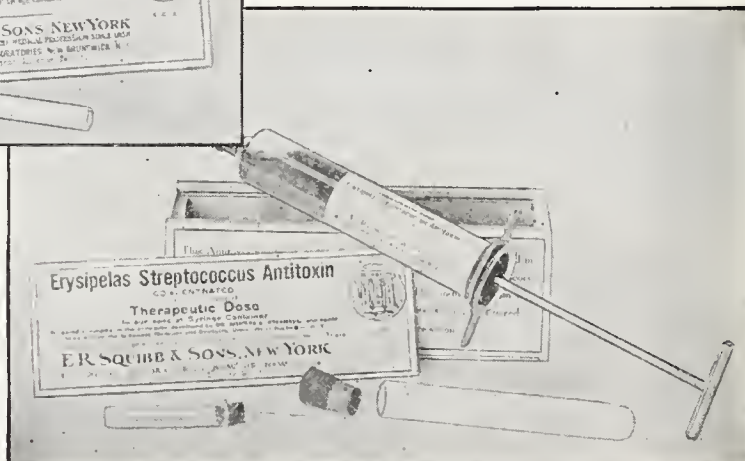
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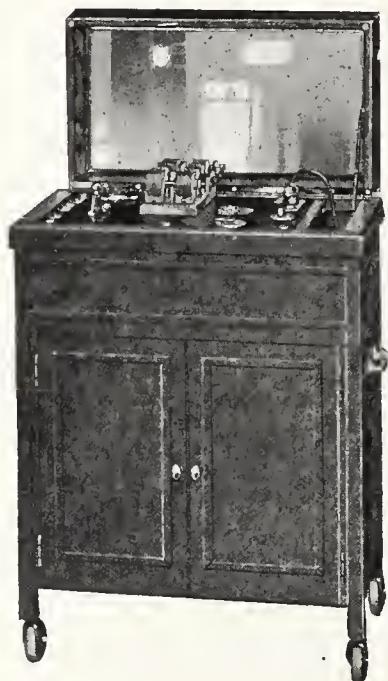
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TRUTH ABOUT MEDICINES

(Continued from Page 440)

Each tablet contained about 0.09 millimicrograms of radium. Brooten's Kelp Ore and Brooten's Kelp Ore Liquid (Kelp Ore Remedies Corporation). The first was found to be a shale-like clay containing iron and aluminum sulphates, and a trace of sulphur, while the "Liquid" was a water solution of iron and aluminum sulphates, with traces of calcium, magnesium and potassium salts.—*Jour. A. M. A.*, July 23, 1927, p. 310.

Cultures of Lactic Acid Producing Organisms—

Pseudoscientific promotion of lactic acid producing bacteria has become familiar, and in some instances it approaches outspoken quackery. The Council on Pharmacy and Chemistry of the American Medical Association has attempted from time to time to issue conservative, tolerant statements regarding the status of the uncertain lactic acid bacillus therapy. Furthermore it has endeavored to establish the conditions under which alone, if at all, actual implantation effects can be expected. Thus, acidophilus milk and broth cultures and concentrates of *B. acidophilus* are not considered acceptable unless the number of viable organisms contained in a stated quantity is clearly stated, and the broth cultures and concentrates are made to indicate the need of the coincident administration of carbohydrates. The wisdom of the Council's cautions is indicated by the recent investigations of James in the microbiologic laboratory of the Bureau of Chemistry, United States Department of Agriculture. This survey of a number of marketed preparations indicated that samples representing cultures of both *B. acidophilus* and *B. bulgaricus* are not infrequently worthless. As was anticipated, the milks showed the highest average counts, the whey cultures next to the highest, and the solid cultures the lowest.—*Jour. A. M. A.*, July 30, 1927, p. 374.

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These statements, if they mean anything, mean that the physician who signs up with the National Medical Bureau practically agrees to take care of five hundred families for \$250 a month, or at the rate of 50 cents a month (\$6 a year) per family. Doubtless the medical service that such families would get would be in keeping with the amount paid the physician.

Limitations of Goiter Prophylaxis—Government authorities believe that there is no reason for special goiter prevention measures on the part of the state and local health departments. They do not see any necessity for universal prophylaxis such as may be attained by iodization of table salt or municipal water supplies. There is a growing opinion that the administration of iodine as a means of preventing goiter should be under the guidance of physicians and should be individualistic. In this way much good may be accomplished.—*Jour. A. M. A.*, July 9, 1927, p. 114.

Vaccination of the New-Born Against Tuberculosis with Bacillus Calmette Guérin—The history of the vaccination of new-born infants against tuberculosis with Bacillus Calmette Guérin (abbreviated B. C. G.) since July 1, 1924, in France and other countries over

(Continued on Page 447)

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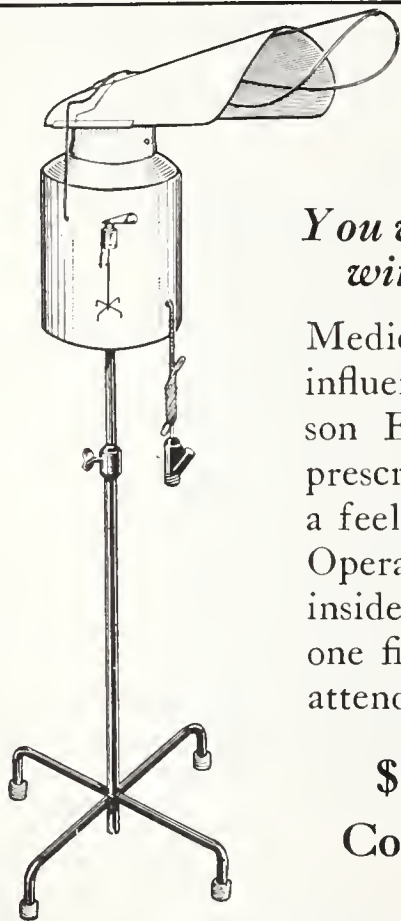
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TRUTH ABOUT MEDICINES

(Continued from Page 445)

a period of two and one-half years to January 1, 1927, has just been reviewed by Professor Calmette with his coworkers Guérin, Nègre, and A. Boquet at the Pasteur Institute in Paris. The vaccine is a living tubercle bacillus of bovine origin rendered avirulent for all animals by 230 passages on bovine bile medium. For the preparation of the vaccine, the B. C. G. organism is transferred from the bile medium to a synthetic medium, cultured, and an emulsion of bacilli prepared. Two cc. of the finished preparation constitutes a dose to be fed to an infant in milk. Three doses are given. A total of 43,283 children have been thus vaccinated. The various papers which are reviewed may be said to represent the culmination of the life work of a revered scientist. They may open a new era in the eradication of tuberculosis and in the knowledge of its epidemiology. For the United States, however, and for all countries it would seem wise to hold in check uncontrolled enthusiasm for its use until those charged with the responsibility of safeguarding the public have carefully proved that the method and the premises are sound.—*Jour. A. M. A.*, July 9, 1927, p. 115.

Two Obesity Fakes Dodge Fraud Orders—The Post Office Department called on the Hall Chemical Company, which sells the obesity preparation, Hall's Tablets Triturates, to show cause why a fraud order should not be issued against it. The proprietor of the company submitted an affidavit declaring that the sale through the mails of Hall's Tablets Triturates had been abandoned. Similarly the firm which exploits "Slends," a chewing gum coated with a mixture containing sugar and phenolphthalein, when asked why a fraud order should not be issued for selling Slends through the mails submitted an affidavit declaring that the business of selling Slends through the mails had been discontinued. There is, of course,

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nothing in the action of either firm to prevent the sale of the products in question through the drug stores.—*Jour. A. M. A.*, July 9, 1927, p. 138.

Bismarsen—The Council on Pharmacy and Chemistry publishes a preliminary report on Bismarsen, the name given by the Abbott Laboratories to a new derivative of arsphenamin containing bismuth and proposed for use intramuscularly in the treatment of syphilis. Bismarsen is the sodium salt of a bismuth derivative of arsphenamin methylene sulphonic acid, the exact structural formula of which has not been established. The Council reviews a report of clinical trials made by Doctors Stokes and Chambers and of a study made for the Council. The Council finds that the available evidence is insufficient to permit the acceptance of the drug for New and Non-Official Remedies; however, the generally favorable character of the reports together with the fact that Bismarsen is a chemical substance of controlled composition is sufficient to warrant its further trial by physicians with due recognition of the fact that the drug is still in the experimental stage. For the information of those who desire to use this compound, the Council publishes a description of the chemical properties, the actions, uses and dosage of the drug.—*Jour. A. M. A.*, July 16, 1927, p. 204.

Radithor—This is one of the numerous pieces of quackery in the field of radioactivity. It is exploited by the Bailey Radium Laboratories of East Orange, New Jersey, the moving spirit of which is one William J. A. Bailey. The Radithor quackery consists of thirty half-ounce bottles of distilled water which is alleged to be radioactive. No less than thirty bottles can be purchased; and the price is \$30. That is, the price to the sucker who happens to be a layman is \$30; to the easy mark who can write M. D. after his name, it is \$25. An order form "... for Doctors' Use Only" states that "when patient buys direct, we allow doctor a \$5 credit on all orders." The physician who would order Radithor must be weak not only in medicine but also in morals.—*Jour. A. M. A.*, July 16, 1927, p. 208.

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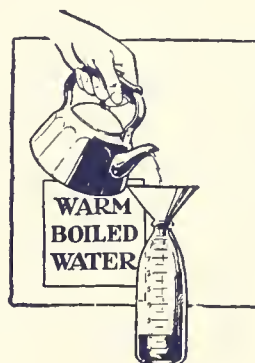


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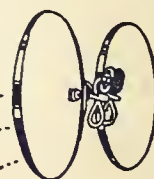
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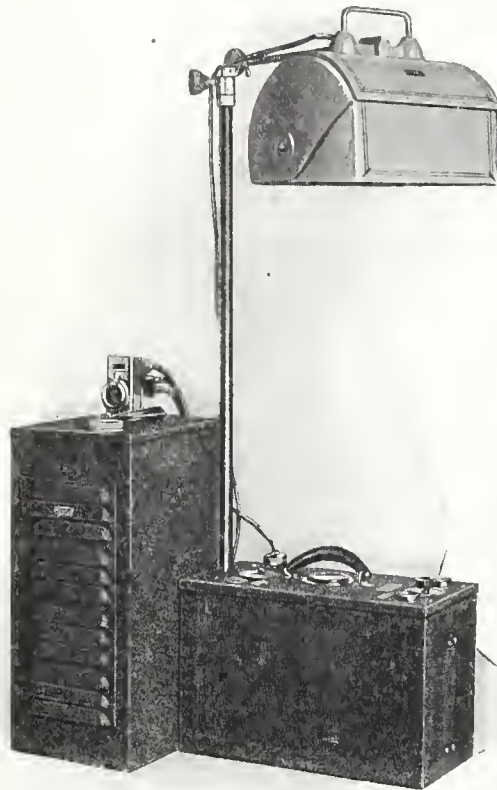
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(Continued on Page 452)

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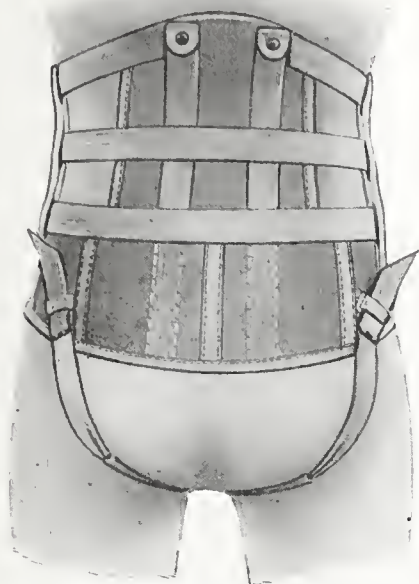


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Santa Cruz County Medical Society President, Alfred Liles Phillips, Santa Cruz. Secretary, Dean S. Woodard, 320 E. Lake Avenue, Watsonville.	Stanislaus County Medical Society President, E. V. Falk, 1115 Eye Street, Modesto. Secretary, J. W. Morgan, 848 Tenth Street, Modesto.	Yolo-Colusa County Medical Society President, C. A. Poage, Pirkey Bldg., Colusa, Calif. Secretary, John D. Lawson, Woodland.
		Yuba-Sutter County Medical Society President, John Duncan, Marysville. Secretary, F. B. Latson, Marysville.

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Directory of Hospitals, Sanitariums, etc., of California

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ALUM ROCK SANATORIUM For the Treatment of Tuberculosis San Jose, Calif.	JOHNSTON-WICKETT CLINIC Anaheim, Calif.	RADIUM AND ONCOLOGIC INSTITUTE Diagnosis and Treatment of Neoplastic Diseases 1052 W. Sixth Street, Los Angeles, Calif.
ANDERSON SANATORIUM Mental and Nervous Diseases 2535 Twenty-fourth Avenue Oakland, Calif.	JOSLIN'S SANATORIUM Nervous and Mental Lincoln, Calif.	SCRIPPS METABOLIC CLINIC SCRIPPS MEMORIAL HOSPITAL La Jolla, San Diego, Calif.
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CHLOE SULLIVAN BOURGEOIS REST HOME Rest and Recuperation 175 Twenty-first Ave., San Francisco	LIVERMORE SANITARIUM Nervous and General Diseases Livermore, Calif.	ST. FRANCIS HOSPITAL Limited General Hospital Bush and Hyde Streets, San Francisco
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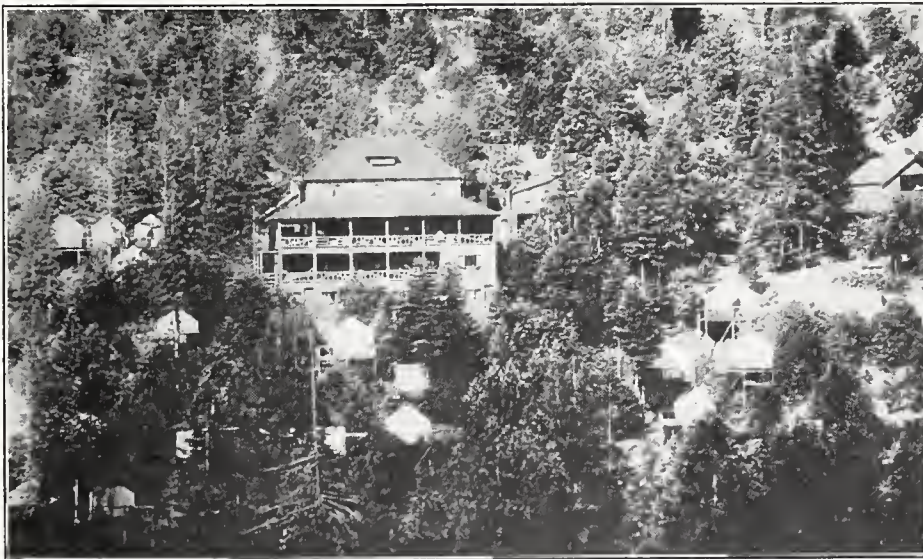
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The Medical Department of the United States Army in the World War. Vol. II. Administration American Expeditionary Forces. Prepared under the direction of Major-General M. W. Ireland, the Surgeon-General, by Colonel Joseph H. Ford, M. D. Review copy by the courtesy of the United States Government Printing Office, 1927.

BOOK REVIEWS

This column is conducted solely in the interests of California and Western Medicine readers. Critical comment, favorable and unfavorable, purely from the standpoint of the interests of the medical reader, will be made about books selected from the larger number acknowledged in the Books Received column. The advertising columns are open to book publishers who wish to make additional statements about their publications.

Examination of Children by Clinical and Laboratory Methods. By Abraham Levinson. Second edition. Pp. 198. Illustrated. St. Louis: C. V. Mosby Company, 1927.

This book may well be termed the "Handbook of the Pediatrician." In it, Doctor Levinson discusses in detail the proper interpretation of the clinical and laboratory findings of infancy and childhood. It is purely a book dedicated to the examination of the child. It is well written and well organized, and the illustrations are excellent.

A Manual of Materia Medica for Medical Students. By E. Quinn Thornton. Second edition. Pp. 384. Philadelphia: Lea and Febiger, 1927.

The author has succeeded in writing an excellent manual of materia medica for medical students and physicians who desire to know something more about official drugs than simply their doses and therapeutic uses.

He has not attempted to write a book for specialists, but has tried, and apparently succeeded in giving a great deal of information which will prove of value to any medical man. It is not a manual of therapeutics, but as it is not practicable to exclude therapeutics from a book of this kind, intended for medical students, the book contains much of therapeutic value.

It deals only with official drugs, but these are sufficiently numerous and varied to satisfy most of the requirements of the prescribing physician.

The practicing physician who will look over this book carefully will be amply repaid for his time and trouble.

Heart and Athletics. Clinical Researches upon the Influence of Athletics Upon the Heart. By Felix Deutsch and Emil Kauf. English translation by Louis M. Warfield. Pp. 187. St. Louis: The C. V. Mosby Company, 1927. Price, \$2.50.

This monograph reports the results of a roentgenographic study of heart size in some three thousand Viennese athletes. Being a statistical study one could wish for more statistical constants and relationships in the tables, which omit uniformly the number of observations. Many words are used in telling what could be indicated by a coefficient of variation, and graphic charts.

The authors' conclusions as to the effect of different kinds of exercise upon the heart are interesting and well supported by the data, so far as heart size is concerned. Rowing, bicycling, and swimming seem to lead to the greatest heart enlargement, while football (soccer), boxing, and running produce little or no change. While the authors advocate medical supervision of athletes, they are not at all impressed with danger to the heart and find no condition which could be called clinically "athlete's heart."

Lister as I Knew Him. By John Rudd Leeson. Pp. 212. Illustrated. New York: William Wood and Company, 1927. Price, \$3.50.

Anyone who reads this delightful and charming book cannot help but feel that he also knew Lister. Every page breathes the very spirit of the father of modern surgery. If Lister were only a name to him before, he will now feel he has touched his garment, so intimately, delicately and altogether beautifully has the author drawn the character. If the reader thought he knew Lister before he will realize that he had only ruffled the surface and that the sea of pearls of this great man's character was to be given to the world by Mr. Leeson.

In every chapter the message and the man go hand in hand. It is impossible to feel which the author admires the more as he constantly blends them. In painting his picture he used sharp colors in contrasts. With a bold sweep of his brush he frequently compares the old with the new and takes us whirling through a span of half a century. One moment we are thrilled with our advances over the old methods, and the next moment we are humbled (or should be) at Lister's grasp of antiseptic surgery. In this day of hurry and bustle and new (?) discoveries, it is restful to return and meditate and worship at the shrine of an old master.

The author has repeated frequently in the second half, (Continued on Page 462)

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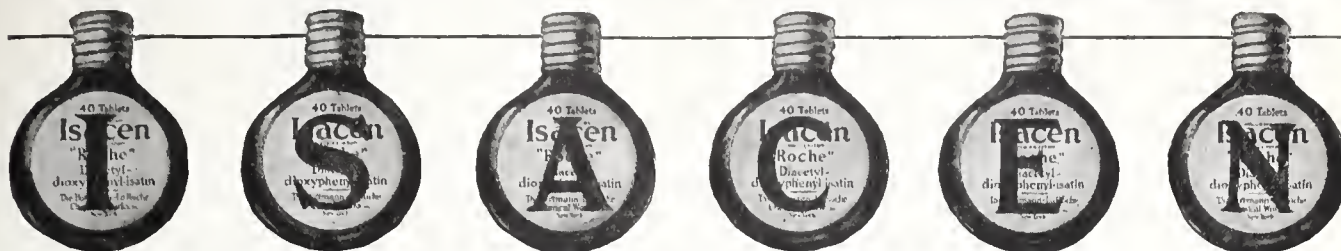
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BOOK REVIEWS

(Continued from Page 459)

but the repetition is no more monotonous than the recurring motives in a symphony.

All who read this book will be deeply moved by the eloquence of a devoted and noble life of one of the greatest benefactors of mankind.

The Modern Practice of Pediatrics. By William Palmer Lucas. Pp. 962. Illustrated. New York: The Macmillan Company, 1927. Price, \$8.50.

The enormous growth of interest in the medical problems of childhood, which is one of the most striking features of medical progress in the last three decades, has given rise to a correspondingly voluminous literature including a large number of texts on pediatrics. The latter almost uniformly have approached the subject from the same direction, namely, the description and treatment of existing disease. Pediatrics itself has, however, developed almost equally along the two lines, which have tended to diverge, of internal medicine and preventive medicine, and it is fair to say that as a rule our texts have stressed the former somewhat at the expense of the latter. Doctor Lucas is therefore to be congratulated on having the vision to recognize that there is need for a book in which both fields would be shown in their due proportions and interrelations. Certainly here is an opportunity for a contribution of the greatest possible value—a work of reference which will not only describe the disease and its treatment, but will also give the available information on how it may be prevented. The result as we have it in the present volume is of unusual interest and value, as might have been expected from the pen of a writer with the experience, knowledge and ability of the distinguished professor of pediatrics at the University of California Medical School.

It must not be thought that the book is in any way one-sided. Doctor Lucas has not only covered the more exclusively preventive aspects in separate chapters and headings (the chapter on the historical development of preventive pediatrics is noteworthy), but has also presented the various clinical topics from the preventive angle. He has, indeed, taken time and space to cover in considerable detail all the outstanding features of juvenile medicine. Metabolism, physiology, pathology, symptomatology, diagnosis, prognosis and treatment are adequately treated, in many instances more fully than in other texts. A final chapter on laboratory and therapeutic technique gives the work an added practical value. Of special clinical interest is the section on disease of

the blood, to which the author has devoted much personal study and research, and which gives his well-known classification of the anemias. There is an excellent chapter on prenatal care, a welcome novelty in pediatrics. A particularly good feature is the bibliography attached to each section, which is unusually full and complete. The index is adequate. The rather numerous typographical errors will doubtless be corrected in subsequent editions, which are certain to be called for.

Social Factors in Medical Progress. By Bernhard J. Stern. Columbia University Press, 1927.

This booklet comprises 136 pages of interesting and informative reading. The author states, "The present inquiry is concerned with two aspects of cultural change as it occurs in the field of medicine, the first, an analysis of the psychological and sociological factors which retard the diffusion of innovations, and the second, the nature of progress in medicine."

Chapters I and II are devoted to a brief discussion of forces which may obstruct the introduction of innovations. These range from vested interests to medical conservatism. Based upon this discussion, deductions are made as to factors which operate in general.

Having set up a standard of general principles for comparison, specific epoch-making discoveries are discussed and the factors which operated against their prompt acceptance are noted. Thus are treated dissection, Augenbruger's percussion theory, vaccination, puerperal infection, Pasteur's doctrines, Listerism, asepsis.

"The physician's conservatism is intensified by his desire to guard against the tremendous influence of mass suggestion." "Attack on the personality of the innovator is very often a rationalization to hide the inability to refute the validity of the innovation." "The masses, in their desire for relief, and in their ignorance, partly due to the deliberate secrecy surrounding medical data are lightly susceptible to all forms of medical propaganda." Such dicta as the foregoing elucidate matters of interest to all thinking medical (and other) people.

The second part of the book is a discussion of the discoverer in the field of medicine, an estimation of his position in relation to medical progress and advancement of general culture. Stern concludes that any particular discoverer is incidental, that conditions permit and demand the step in advance, and the discoverer is merely one who leads the way; if he did not do so, another would. To prove that such is the case, numerous instances are cited where a discovery has been made simultaneously and independently by more than one person.

For the benefit of investigators an extensive bibliography is supplied.

The book is to be highly recommended. In precise and interesting manner it imparts much valuable information.



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TRUTH ABOUT MEDICINES

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(Abstracts from reports of Council on Pharmacy and Chemistry, A. M. A.)

Note.—These do not represent all of the actions of the Council, but they do represent those remedies manufactured by firms who cooperate with California and Western Medicine in its advertising columns, and thereby with the physicians in California.

In addition to the articles previously enumerated, the following have been accepted:

Abbott Laboratories—Acetarsone, Amiodoxyl Benzoate (Abbott), Ephedrin Sulphate (Abbott).

H. K. Mulford Company—Diphtheria Toxin-antitoxin Mixture, New Formula, Park-Banzhaf's 0.1 L +; Erysipelas Streptococcus Antitoxin (Concentrated), Mulford.

Nonproprietary Articles—Amiodoxyl Benzoate.

Diphtheria Toxin-Antitoxin Mixture, New Formula, Park-Banzhaf's 0.1 L + (New and Nonofficial Remedies, 1927, p. 341)—This product is also marketed in packages of one 10 cc. vial, representing three immunizing treatments. H. K. Mulford Company, Philadelphia.—*Jour. A. M. A.*, August 20, 1927, p. 600.

PROPAGANDA FOR REFORM

Ethylene, II—The A. M. A. Chemical Laboratory reports another examination of the quality of ethylene for anesthesia which is on the market. The laboratory reports on the composition of "Ethylene for Anesthesia" of the Certified Laboratory Products (which has been accepted for New and Nonofficial Remedies) and a specimen of the ethylene of the Kansas City Oxygen Gas Company, the quality of which had been questioned in a hospital. The laboratory found both products to meet the requirements of New and Nonofficial Remedies. The laboratory repeats its previous recommendation, that physicians use only the brands of ethylene described in New and Nonofficial Remedies.—*Jour. A. M. A.*, August 6, 1927, p. 451.

James Harris—Quack—James Harris, Tulsa, Oklahoma, has for some years been quacking it in the "cancer cure" line, selling "Radium Oil." The Supreme Court of Oklahoma has recently affirmed the judgment of the trial court that had awarded a woman \$10,000 damages because Harris had treated what at the outset was an operable case of cancer of the breast

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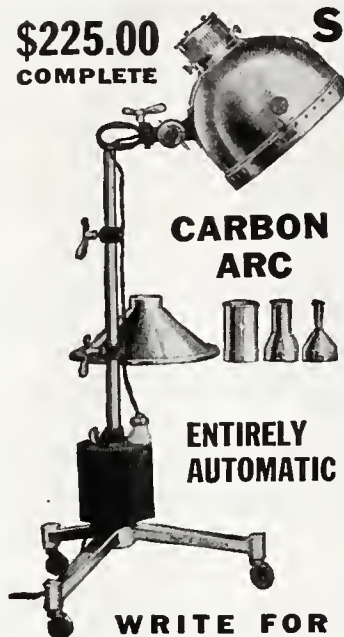
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and allowed the matter to progress until it became inoperable.—*Jour. A. M. A.*, August 6, 1927, p. 468.

Grapefruit Infusions—The use of a cold water infusion of whole grapefruit (including peel and pulp) seems to be one of the fads of Frank McCoy, who dispenses so much dietetic information that isn't so. According to McCoy, grapefruit "contains organic quinin," which, he declares has "a quicker effect than

(Continued on Page 466)

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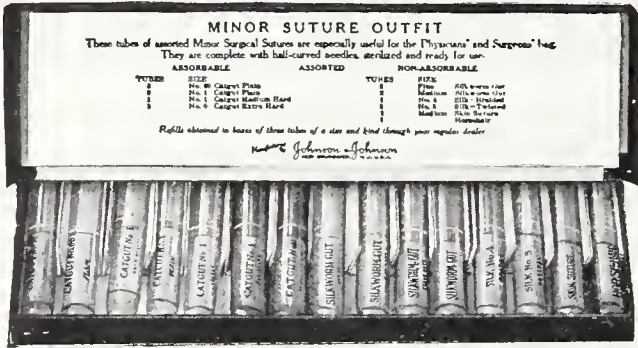
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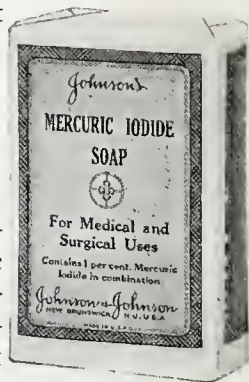
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TRUTH ABOUT MEDICINES

(Continued from Page 464)

the inorganic form of quinin used in tablet form." According to McCoy, this infusion of grapefruit is "valuable in its action upon the liver and gall bladder in the elimination of gall-stones." Few men have a larger fund of dietetic misinformation than that possessed by Frank McCoy.—*Jour. A. M. A.*, August 6, 1927, p. 470.

Liver Extracts in Anemia—The striking effect of feeding liver and certain preparations of liver on a number of physiological processes has been established. In the case of growing animals it appears to promote rapid gains in size. The extraordinary effect of diets including liver on severe anemias of long standing in dogs has been shown. Vigorous regeneration of hemoglobin and red blood cells can be brought about by feeding the hepatic tissue of various species, beef, pig, sheep, calf, and chicken, having been tested with unquestionable success. Striking effects have been obtained in pernicious anemia with diets containing large amounts of liver in one form or another. Studies undertaken to determine the constituents of liver which are effective in pernicious anemia have been made and potent concentrates have been obtained.—*Jour. A. M. A.*, August 13, 1927, p. 524.

Lucky Tiger—This is a dangerous nostrum sold for the treatment of dandruff, eczema, and sore feet. Because of reports of severe skin irritation following the use of "Lucky Tiger," the A. M. A. Chemical Laboratory analyzed it. The laboratory concluded that the preparation consists essentially of ethyl (grain) alcohol, methyl (wood) alcohol, sodium salicylate, and sodium arsenite. The amount of arsenic present as sodium arsenite was about one-tenth as much as found in solution of potassium arsenite (Fowler's solution). When the amount of the preparation that will be used in an application is consid-



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ered it can be readily appreciated what a relatively strong solution of arsenic this is. This preparation has no place among legitimate home remedies.—*Jour. A. M. A.*, August 13, 1927, p. 541.

Lukosine not Acceptable for N. N. R., II—Since publication of the report of the Council on Pharmacy and Chemistry on Lukosine the National Drug Company has informed the Council that the quantitative formula for the preparation is given in its price-list and in its "revised advertising." The latter contains the following formula: "Boric acid, 80.5 per cent; Alum, 9.2 per cent; Zinc Sulphate (dried), 4.0 per cent; Zinc Phenolsulphate (Phenolsulphonate ?), 2.5 per cent; Sodium Salicylate, 2.5 per cent; Phenol, 1.0 per cent, rendered pleasantly aromatic with a blend of Thyme, Peppermint, Eucalyptus, and Methyl Salicylate. Each heaping teaspoonful contains 1/75 grain of Hydrastine White Alkaloid." In view of this the Council revises its statement by the omission of the word "semisecret" to read: "Lukosine is unacceptable for N. N. R. because it is a needlessly complex, and therefore irrational, mixture, marketed with a therapeutically suggestive name and with unwarranted therapeutic claims, in such a way as to lead to its indiscriminate and ill-advised use by the public."—*Jour. A. M. A.*, August 13, 1927, p. 542.

Digitalis—It is well known that many cardiac patients who fail to improve with full digitalization owing to some unknown condition, show marked improvement when the same specimen of digitalis is given subsequently. Such cases afford opportunity for attributing extraordinary value to any digitalis preparation that the clinician happens to employ in the second course of treatment.—*Jour. A. M. A.*, August 13, 1927, p. 543.

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(Continued on Page 470)



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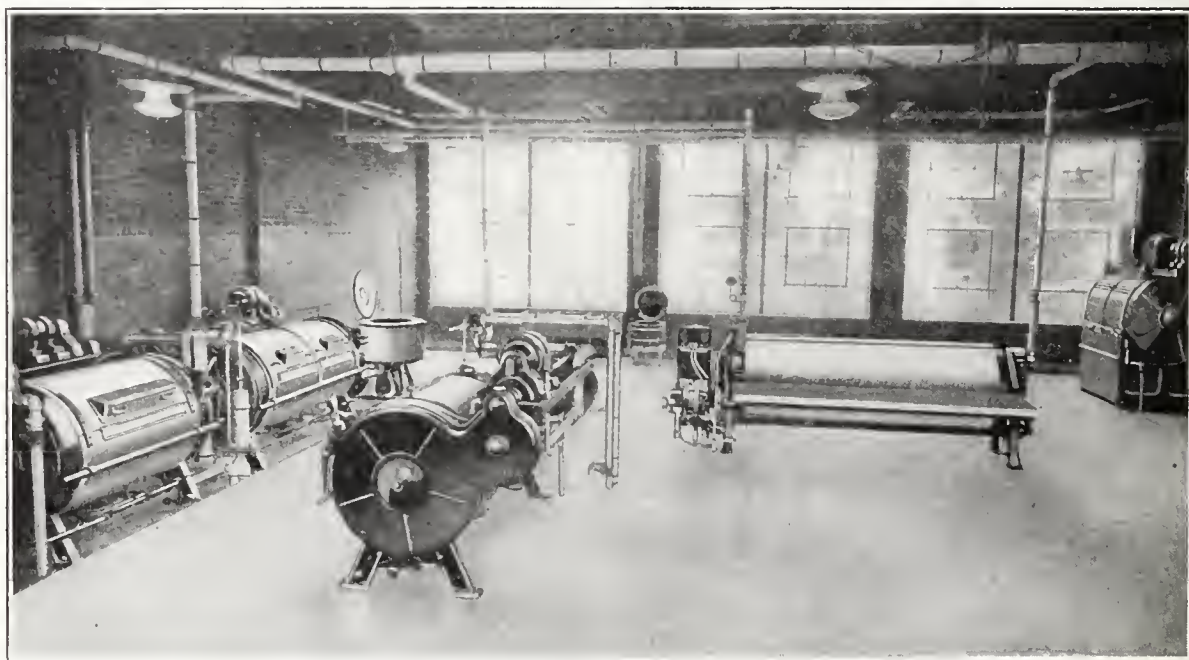
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TRUTH ABOUT MEDICINES

(Continued from Page 467)

of articles that are grossly contaminated is much simpler and safer than the use of antiseptics and fumigation. These often do little more than to give a false sense of security and leave a disagreeable odor.—*Jour. A. M. A.*, August 13, 1927, p. 543.

Harrell Associated Chemists—Harrell Associated Chemists, 322 West Washington Street, Chicago, exploit a mail-order cure for rheumatism. As the head of the organization, one J. Randolph Harrell is put forward. In the advertising he is styled "Professor" and advertised as "an authority on physiological chemistry." The facts are, Harrell is unknown to reputable medicine, pharmacy or chemistry.—*Jour. A. M. A.*, August 20, 1927, p. 637.

Alpha-Lobelin—The Council on Pharmacy and Chemistry reports that under the name "Alpha-



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drug is being used" gives an erroneous impression as to the extent of its use and of the results to be expected. The paper by Norris and Weiss and other papers which have been published contain no conclusive evidence regarding the usefulness of alpha-lobelin. Since adequate evidence for the therapeutic usefulness of alpha-lobelin is lacking at the present time, the Council has postponed definite action in regard to the eligibility of the drug for inclusion in New and Nonofficial Remedies.—*Jour. A. M. A.*, August 27, 1927, p. 693.

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(Continued on Page 478)

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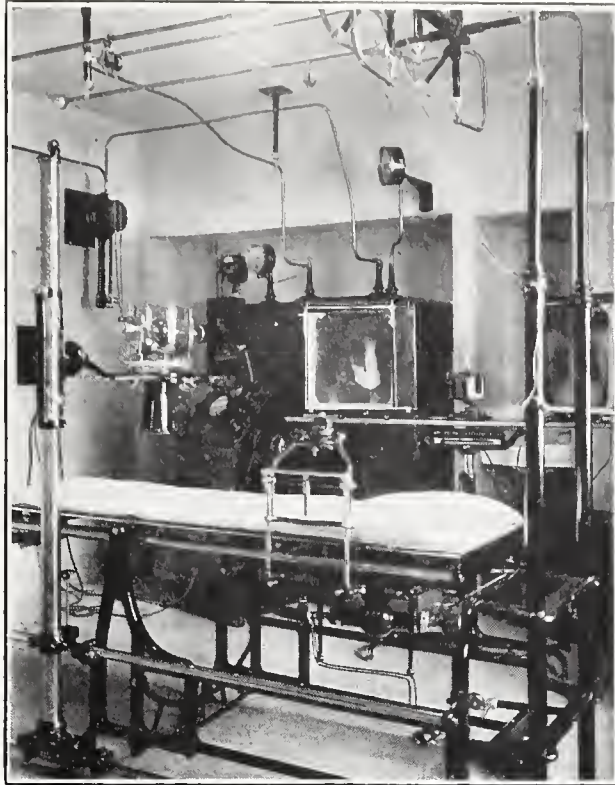
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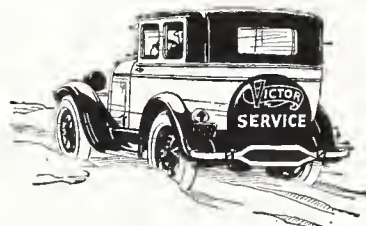
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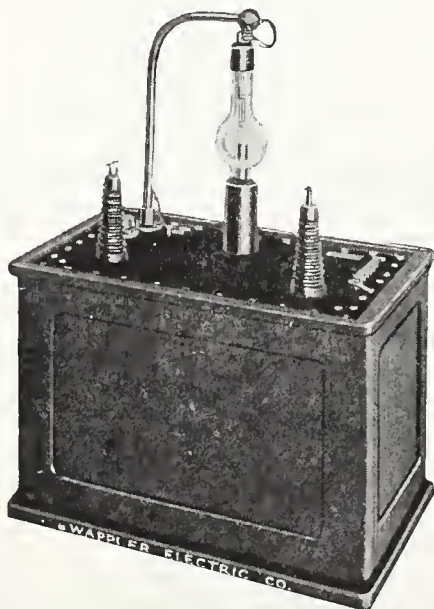
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TRUTH ABOUT MEDICINES

(Continued from Page 471)

is not absorbed from the gastro-intestinal tract, and since it has a widespread use as a laxative, it is important to ascertain whether the fat-soluble vitamins in the food are liable to be "diverted" from alimentary absorption by the presence of the nonabsorbable liquid petrolatum solvent. It has been shown that liquid petrolatum may act as a solvent for vitamin A, thereby depleting ingested foods of their supply of this factor. A comparable influence on the antirachitic vitamin has not yet been demonstrated, though it may naturally be expected if liberal amounts of liquid petrolatum are ingested. Attempts have been made to increase the antirachitic potency of cod-liver oil by irradiation. The evidence indicates that this is not feasible.—*Jour. A. M. A.*, August 27, 1927, p. 694.

Revising the Pharmacopeia—Apparently some misunderstanding as to the exact nature of the United States Pharmacopeia has given opportunity for criticism of the work of the Revision Committee, particularly of the Subcommittees on Scope and Nomenclature. The first edition of the United States Pharmacopeia, published in 1820, expressed the purpose of selecting from among the substances used in medicine those remedies most worthy of medical employment. To anyone at all familiar with the progress of the United States Pharmacopeia it is obvious that it tends more and more to become a scientifically reliable work, to realizing more and more greatly the necessity for established proof of virtue before admission can be granted.—*Jour. A. M. A.*, August 27, 1927, p. 697.

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CALIFORNIA AND WESTERN MEDICINE

VOLUME XXVII

OCTOBER, 1927

No. 4

THE BACTERIOPHAGE: ITS PROPHYLACTIC AND THERAPEUTIC VALUE*

A REVIEW

By E. W. SCHULTZ, M. D.
Stanford University

THE discovery of bacteriophagy by d'Herelle¹ in 1916 marks the beginning of one of the most important epochs in the history of bacteriology, not only because of its theoretical, but probable practical bearing. In August of that year there came to the hospital of the Pasteur Institute an adult suffering with a severe form of Shiga dysentery. During the course of the patient's illness d'Herelle made bouillon cultures of the stools daily. These cultures were incubated overnight and filtered through a Chamberland filter. A few drops of the filtrate was then added to a young bouillon culture of dysentery bacilli and the mixture placed in the incubator. Throughout the course of the disease the tubes so prepared yielded normal cultures of dysentery bacilli. One morning, however, the tube prepared on the previous day was found to be sterile. At the same time it was learned that the condition of the patient had greatly improved. The sterile tube was filtered and a few drops of the filtrate was added to a fresh suspension of dysentery bacilli and placed in the incubator. In about ten hours this tube also became limpid. A few drops of the filtrate of this lysed culture induced complete clarification of the third suspension, and so on indefinitely in series. In other words, the lytic principle was regenerated with the dissolution of each culture.

On spreading a suspension of Shiga bacilli, to which a little of the filtrate had just previously been added, on an agar surface, d'Herelle noted after incubation the presence of a number of small, circular, clear areas in an otherwise uniform turf of bacterial growth. These d'Herelle ascribed to the deposition of corpuscles of the lytic agent present in the mixture which he had spread on the agar surface. He believed that the original corpuscles deposited on the surface had parasitized and dissolved the growing bacteria in their immediate vicinity and that the clear areas actually represented colonies of the lytic corpuscles. The number of the clear areas varied with the quantity of the filtrate added to the bacterial suspension. D'Herelle concluded that the phe-

nomenon must be due to an invisible parasite of the bacteria and he accordingly gave it the name "bacteriophage."

FURTHER OBSERVATIONS CONCERNING THE BACTERIOPHAGE

These observations stimulated d'Herelle² and a host of other investigators to a further study of the phenomenon as is evidenced by the fact that about seven hundred papers have since appeared. It is obvious that an adequate presentation of even the main facts is out of the question in the brief time at my disposal. I shall therefore confine myself to such introductory remarks as appear essential for a satisfactory understanding of the principle theme which is to follow.

Following the isolation of a bacteriophage active on dysentery bacilli, d'Herelle² isolated in rapid succession races active on a number of other species of bacteria, including *B. coli*, *B. typhosus*, *B. paratyphosus* A. and B., *B. gallinarum*, *Pasteurella bovisepitica*, *Pasteurella pestis*, *Vibrio cholerae*, etc. Races active on staphylococcus and streptococcus and several other species have been added by other investigators.

With few exceptions these races have all been isolated from the feces of man and animals, particularly from convalescents, and from water and soil. Indeed, according to d'Herelle every animal and every man harbors a bacteriophage in symbiosis with *B. coli* or other species of the normal intestinal flora. In the event of an invasion by a pathogenic bacterium the bacteriophage normally present gradually acquires a virulence for the invader and brings about its elimination after the virulence has attained a certain level. Some investigators question its habitual occurrence in normal animals and men, but this difference of opinion may be due, as d'Herelle has pointed out, to defective procedures in making the isolation. This is, however, a minor point so far as the purpose of this paper is concerned.

Of considerable importance, however, is a full recognition of the fact that different races of the bacteriophage may differ widely in their virulence for a given bacterium. Moreover the virulence of a given race may differ appreciably for the different bacteria attacked. For some species the virulence may be marked, for others it may be of a low grade, but when the virulence for a given bacterium is low it may generally be greatly increased by serial passage on the organism. On the other hand, the virulence of the bacteriophage may be attenuated by applying appropriate heat,

* Read before the Santa Clara County Medical Society, March 16, 1927.

and in other ways. It is not necessary, for the purpose of this paper, to explain this difference in the virulence. D'Herelle regards it as the response of a living body. Other explanations have, however, been offered in the literature.

On the part of the bacteria there also appear to be certain fixed differences with regard to the phenomenon. Certain species, like *B. dysenteriae* and *B. pestis*, appear to be homogenous with regard to their susceptibility to 'phage action, that is, a race of bacteriophage virulent for one strain of the species shows itself virulent for all other strains of that species. On the other hand, such species as *B. typhosus* and *S. aureus* are clearly heterologous with regard to their susceptibility, certain strains may prove to be susceptible, whereas other strains resist the particular bacteriophage. It should, however, be added that insusceptible strains may prove susceptible to another race of bacteriophage.

Another form of bacterial resistance to 'phage action is that which apparently results from a reaction to the bacteriophage, an acquired immunity which follows exposure to a bacteriophage, particularly one of low virulence. Bacteria which survive the lytic action of the bacteriophage subsequently reclooud the culture medium, and such reclouding is referred to as a "secondary culture." With a weak 'phage, secondary cultures appear promptly and with regularity, whereas with a highly virulent 'phage the lysed culture may remain clear for weeks. It is significant that these resistant forms seem to possess the faculty of attenuating the bacteriophage corpuscles exposed to them. Indeed, according to d'Herelle and Flu the bacteriophage may actually be destroyed as a result of such exposure. As a rule, however, an equilibrium seems to be established, so that virulent corpuscles and resistant bacteria are found to coexist in the subsequent transfers to fresh bouillon. On solid media, only a portion of the colonies may be found mixed with 'phage, the remainder being free of the contamination. Of the latter some may prove resistant to 'phage action, while others may prove susceptible. The resistant, 'phage-free, colonies may, however, lose the acquired property after a number of generations on artificial media. It is clear, therefore, that a study of the phenomenon involves a consideration of *two* variables, the bacteriophage and the bacterium.

PROPERTIES OF THE BACTERIOPHAGE

Something should be said regarding the properties of the bacteriophage. It is generally held now that the bacteriophage is of corpuscular nature. Indeed its size has been estimated to be about 20 to 30 uu. According to one investigator it is of about the same dimension as the virus of vaccinia and of rabies. Regarding its composition nothing is known. Most races seem to resist the action of trypsin. I have, however, found two races of antistaphylococcus bacteriophages which are inactivated by trypsin within forty-eight hours. Others seem to resist its action indefinitely. The bacteriophage is more resistant to heat than are vege-

tative forms of bacteria. The temperature of inactivation seems to be related to the degree of virulence. Some impairment of the activity is said to appear at 45C., but at about 75C. complete inactivation results in thirty minutes, whatever the race or degree of virulence.² It is also more resistant to chemical agents than are vegetative forms of bacteria. It may retain its activity in filtrates over a period of years, though the corpuscles are said to diminish appreciably during this time. Injected repeatedly into the animal body the bacteriophage gives rise to an antiphagic serum, which is capable of exercising a definite inhibiting action on the phenomenon.

D'HERELLE'S VIEW OF THE BACTERIOPHAGE

Despite the extensive studies on the nature of the bacteriophage, widely different views are entertained by investigators. It is out of the question to deal even briefly with the theories which have already been advanced. D'Herelle holds that it is a living virus parasitic on bacteria. He bases this hypothesis on the evidence (1) that the bacteriophage is an autonomous body foreign to the bacterium, at the expense of which it multiplies; (2) on the ground that the multiplication of an autonomous body implies the power of assimilation, *a criterion of life*, and (3) on the ground that the bacteriophage possesses powers of adaptation, *another criterion of life*. But, as I have indicated, a number of other hypotheses have also been advocated, and in which the bacteriophage is for the most part explained as either a living or non-living principle, of one sort or another, derived from the substance of the bacteria themselves. A consideration of these theories would in itself require an evening. As a matter of fact, from the standpoint of its possible practical bearing, it really makes no difference whether the bacteriophage is animate or inanimate; a product of the bacteria, or in reality a parasite foreign to them. Its nature can only be of academic interest and may not, like the nature of anaphylaxis, be definitely settled for a number of years to come.

Of considerably more importance from the practical standpoint are studies of the rôle the bacteriophage may play in recovery from disease and in checking epidemics. According to d'Herelle, the outcome of a bacterial infection probably depends on the rapidity with which the bacteriophage naturally present in the intestine acquires a virulence for the invading organism. Under favorable conditions a rapid adaptation on the part of the bacteriophage results in an early elimination of the pathogenic organism after only a few mild symptoms, or no symptoms at all. Under less favorable conditions the acquired virulence appears later and there is a proportionate delay in the abatement of the disease symptoms. At any rate, a potent bacteriophage is said to make its appearance simultaneous with the onset of convalescence. Moreover the bacteriophage does not remain confined to the intestinal tract, but, as has been shown by several investigators, may pass into the circulation and so reach affected tissues lying outside of the alimentary tract. In other words, although this latent defense resides

in the intestinal flora, once aroused, its activities may extend to distant tissues in the body.

Moreover, according to d'Herelle, the virulent bacteriophage eliminated in the feces of the convalescent may be in turn ingested by normal individuals living within the zone of an epidemic and so convey a timely protection to otherwise susceptible individuals. In other words, he holds that this particular type of immunity, like the disease itself, is infectious in character. "The epidemic ceases at the moment when all susceptible individuals harbor a bacteriophage active for the causative organism of the epidemic. Either the bacteriophage has acquired a virulence in the body of the individual who harbors it, or this individual has been 'contaminated' by a bacteriophage which has acquired a virulence in another individual for the specific bacterium involved."

With these introductory remarks, let us proceed to a consideration of the possible prophylactic and therapeutic value of the bacteriophage.

I. PROPHYLACTIC VALUE FOWL TYPHOID

In 1919 d'Herelle^{2, 3} reported significant results following the immunization of chickens against fowl typhoid during the course of a natural epizootic. About 1600 chickens, including 100 chickens already sick, were inoculated. Each animal received 0.5 cc. of a virulent bacteriophage subcutaneously. In each case the outbreak was promptly arrested. Similar results have also been reported by Kramer⁴ in sixteen natural outbreaks. This investigator also observed excellent results in several natural outbreaks of bacillary white dysentery in chicks, which he had injected with a bacteriophage active for *B. pullorum*. Pyle⁵ has, however, recently reported practically negative results in experimental bacillary white dysentery of chicks. This investigator did not enjoy an opportunity to study the value of bacteriophage inoculations against the natural infection. I should add that Pyle's results do not represent the only failure in attempts which have been made to so immunize animals against *experimental* infections. Miessner and Baars,⁶ Kramer,⁴ and Levy⁷ have all met with failure in attempts to so immunize mice against experimental infection with *B. typhimurium*. D'Herelle² has failed to protect guinea-pigs against experimental plague. It would appear, therefore, that one is not always justified in drawing conclusions on the basis of experimental infections.

BARBONE

Impressive results have also been obtained by d'Herelle,^{2, 8} in association with Le Louet, chief of the Veterinary Service of Cochín-China, following the prophylactic inoculation of buffaloes against a highly fatal hemorrhagic septicemia known as barbone. The high mortality among these important beasts of burden entailed a great economic loss to the country. D'Herelle states that during an epizootic which he witnessed in one of the provinces 10,000 of the 30,000 buffaloes in the region succumbed to the disease. The mortality approached 100 per cent. The Government

therefore placed a number of animals at the disposal of d'Herelle and Le Louet for investigation. They first undertook to determine the value of the bacteriophage as an immunizing agent against experimental barbone. The bacteriophage employed was a highly virulent race which d'Herelle had recovered from the feces of a buffalo which passed unaffected through the previous epizootic. The bacterium employed to test the immunity was a highly virulent organism which killed the control animals within twenty-four hours.

The bacteriophage was administered subcutaneously, but in these experiments the results differed in certain important respects from those observed in the epizootic of fowl typhoid. In the case of fowl typhoid it was noted that the epizootic subsided promptly after the administration of the bacteriophage, due presumably to its continued as well as immediate activity. In the case of experimental barbone it soon became obvious that two types of immunity, appearing at different times, come into play. First there is a brief refractory period, traceable to the bacteriophage itself, and later a second, more durable, refractory period, due evidently to a stimulation of the animal's own defense mechanism. The first protection disappears within a period of about forty-eight hours, unless as a result of continual reinfection, as under the conditions of an epizootic the bacteriophage becomes more firmly established in the host. The second type of immunity evidently results from the immunizing action of the dissolved products of the bacteria themselves. The time of its appearance seems to depend on the quantity of the filtrate injected. The larger the dose the longer is the incubation period which intervenes. The immunity does not appear, following a dose of 20 cc., until after a period of about sixty days. The injection of 5 cc. shortens the incubation period to about twenty-eight days; a dose of 0.25 cc. shortens it to about twenty days, and a dose of 0.04 cc., less than a drop, conveys a "solid immunity" by the fourth day. That a single dose of even 0.25 cc. will convey a "solid immunity" is indeed surprising, and suggests that lysed bacteria are far more potent antigens than are the intact organisms, a subject which certainly deserves further investigation.

D'Herelle showed that this organic immunity is not in any way due to the activity of the bacteriophage, but related to the products of bacterial lysis, for the same immunizing action obtains after the bacteriophage in the filtrate has been inactivated. It is interesting that, despite the fact that the immunity is stimulated by the products of bacterial lysis, the sera of the animals presented no antibacterial antibodies, although the blood of immunized animals conveys a definite protection to susceptible animals. D'Herelle therefore concludes that the antibodies formed are antitoxic in nature.

The immunity which follows a single injection of the lysed culture seems to border on an actual refractory state. Animals which received an injection of 0.25 cc. of the filtrate developed a resistance to as high as 2000 fatal doses of the

organism, whereas the controls always died within twenty-four hours.

According to d'Herelle,² Le Louet later, as Inspector-General of the Veterinary Service of Indo-China, proceeded to carry out the immunization on a large scale. In September of 1923 he reported that none of the 12,000 buffaloes immunized had contracted the disease, despite the fact that it was prevalent in Indo-China. In 1925 Le Louet⁹ reported that the immunization had been continued and that the incidence of barbone had been reduced to practically nothing.

EXPERIMENTAL SHIGA INFECTIONS

D'Herelle² has also shown that it is possible to protect rabbits against the toxin of the Shiga bacillus, to which these animals are susceptible, by injecting a small dose of a filtrate which has been permitted to age for a week or longer. The filtrate on aging becomes atoxic, but retains marked antigenic properties. The immunity appears by the sixth day and persists for at least six months. D'Herelle's results have been confirmed by Kabeshima¹⁰ and Sardjito.¹¹ These observations suggest that it may be possible to effectively immunize man against bacillary dysentery by means of filtrates which are no longer toxic.

II. THERAPEUTIC VALUE BACILLARY DYSENTERY

With regard to the possible therapeutic value of the bacteriophage, it must be said that very encouraging results have already been reported. In 1921 d'Herelle^{2 12} reported excellent results in seven cases of Shiga dysentery. In each case the bloody stools stopped within twenty-four hours and the patient entered on immediate convalescence. Shortly after, however, Otto and Munter¹³ in Germany and Davison¹⁴ in this country reported essentially negative results. Da Costa Cruz¹⁵ in South America also obtained essentially negative results in his early work, but later became a most enthusiastic supporter of this form of therapy in dysentery. He attributes his failure in the beginning to the use of a less virulent bacteriophage. It is possible, therefore, that the results of Otto and Munter and of Davison are traceable to the same cause. Up to 1924 da Costa Cruz¹⁶ prepared as a member of the Instituto Oswaldo Cruz, at Rio de Janeiro, about 10,000 ampouls for distribution to hospitals and physicians in Brazil. There have been to his knowledge only two exceptions to the uniformly good results reported. Indeed, the promptness with which the patient responds to the treatment is a matter of astonishment to the physicians. The patients as a rule enter on convalescence within twenty-four to forty-eight hours after the bacteriophage has been administered. In Rio de Janeiro this method of treatment is now routinely employed in bacillary dysentery. Its therapeutic value is also affirmed by Pereira¹⁷ in South America, Spence and McKinley¹⁸ in this country, and Munter and Boenheim¹⁹ in Germany.

In the preparation of the bacteriophage suspension destined for therapeutic use, d'Herelle² emphasizes that "it is absolutely indispensable

that the bacteriophage be of maximum virulence for the bacterium upon which it is to act." It is furthermore important that the filtration be made through a candle of known efficiency and that the tubes be inspected for freedom of bacterial growth before use. It is administered by mouth. About two cubic centimeters of the filtrate is given in a half glass of water. Twelve hours later a second dose may be administered. The ingestion of the bacteriophage is harmless, whatever the dose, either for a normal man or a patient suffering from some other disease. In other words, there are said to be no contraindications.

TYPHOID AND PARATYPHOID

Attention has been called to the fact that in immunizing chickens against fowl typhoid, d'Herelle² inoculated 100 chickens which already were ill. Of these only about 5 per cent died, whereas the mortality during the epizootic approached 100 per cent.

Encouraging results have also been reported in human typhoid and paratyphoid infections. Beckerich and Hauduroy²⁰ report favorable results in eight out of twelve cases. In all of the cases the blood culture was positive before the bacteriophage was administered. In six of the cases the temperature dropped to normal within forty-eight hours. Hauduroy and Arsimoles²¹ report a cure in a case with dysenteriform symptoms, which they treated with a mixture of anti-typhoid and antidysentery bacteriophage. The blood disappeared quickly from the stools, and the patient entered on convalescence in forty-eight hours. Hauduroy²² subsequently reported three more cases of typhoid in which rapid improvement followed the administration of an active 'phage. Alessandrini and Doria²³ treated eighteen cases of typhoid, in nine of which they obtained clear-cut results. Smith²⁴ noted immediate improvement in five out of seven cases. Richet, Azerad, and Delarne²⁵ report great improvement in a very severe form of typhoid. Philibert and Hauduroy²⁶ reported definite improvement in some cases and entirely negative results in others, while Herderschee and Wolff²⁷ treated about 100 cases without noting any beneficial results.

From the reports it is noteworthy that either definite improvement immediately follows the administration of the bacteriophage, or no improvement at all is noted. There appear to be no intermediate effects. Several explanations have been offered. Marcuse²⁸ attributes the failures to a possible lack of contact of the bacteriophage and the bacterium, and accordingly recommends intravenous injection in addition to ingestion. Hauduroy²⁹ has found that the addition of bile to the medium inhibits the phenomenon in vitro, and it is therefore possible that the organisms in the gall bladder are protected. Another factor, and one of considerable importance, is the irregular behavior of the various strains of typhoid and paratyphoid bacilli with reference to the bacteriophage. A bacteriophage active on one or on several strains may not be active on others. The strains which resist one race of bacteriophage may nevertheless be fully susceptible to another race. It is there-

fore always necessary to first determine whether the particular strain of typhoid bacilli causing the disease is susceptible to the race, or races, of bacteriophage at one's disposal. Polyvalent, or mixed, suspensions to cover a wider range of possibilities would naturally offer the best solution. The virulence of the bacteriophage intended for therapeutic use is, of course, of first importance.

B. COLI INFECTIONS

Of no little interest are the results which have been obtained in the treatment of *B. coli* infections of the urinary tract. Beckerich and Hauduroy^{29 30} have reported on fourteen cases, in nine of which recovery followed promptly. Hauduroy³¹ subsequently gave considerable attention to this method of treating these stubborn infections, and has reported very favorably on the basis of a large number of cases. This mode of treatment is also enthusiastically endorsed by Philibert.³² Cures have also been reported by Arloing, Dufour, Bouvier, and Sempé³³; by d'Herelle,² Larkum,³⁴ Pereira,¹⁷ Winans,³⁵ and by Zdansky.³⁶ I hasten to add, however, that the cures reported represent only a portion of the total number of cases treated by those I have mentioned. As in the phagetherapy of typhoid fever, some cases seem to respond promptly to this form of treatment, whereas others do not appear to be influenced in the least. Several explanations present themselves. In the first place, it is possible that in some cases, particularly those of long standing, the bacterium responsible may have acquired a resistance to 'phage action as a result of exposure to a bacteriophage of indifferent virulence already present. Sickenga³⁷ reported that he found a bacteriophage constantly present in the urine of four cases of pyelitis in children, and occasionally present in the urine of twelve other cases. Larkum,³⁴ who has made a careful study of bacteriophagy in urinary infections, found a bacteriophage present in one or more specimens of urine in about 36 per cent of the cases examined. Moreover, he observed that in the acute cases the bacterium was practically always susceptible to lysis, whereas resistant forms of *B. coli* were almost always recovered from the chronic cases. In the second place, the irregular therapeutic results may be in part traceable to the fact that *B. coli* is a highly heterologous species with regard to the bacteriophage and that, therefore, the proper bacteriophage, or combination of 'phages, may not always have been employed. Hauduroy, who has isolated a large number of races active on various strains of *B. coli*, found two races which are distinctive for their wide range of activity. He mixes these for therapeutic purposes. Finally there is always the possibility that in some of the trials the virulence of the bacteriophage employed may not have been sufficiently high for the particular job it was expected to perform. At any rate, the factors which determine these irregular results are deserving of further study.

In the treatment of colon infections of the urinary tract, the bacteriophage is administered subcutaneously and by instillation into the blad-

der. Subcutaneously it may be administered in doses of about 2 cc., at an interval of about twenty-four to forty-eight hours, but not more than two doses should be administered in this way.² Bladder instillations should be made at the same time with about a 1:10 dilution of the bacteriophage in physiological saline. The instillations may be repeated, but if a therapeutic effect does not appear within a week it is probable that none will be realized. No reactions are said to follow the administration of the bacteriophage.

STAPHYLOCOCCUS INFECTIONS

Significant results have also been reported for staphylococcus infections. Bruynoghe and Maisin³⁸ injected antistaphylococcus bacteriophage into the base of furuncles and carbuncles of six patients and noted in all of them a marked therapeutic effect within forty-eight hours. Gratia³⁹ about the same time reported successful results on about fifty cases of staphylococcus infections, including furunculosis, carbuncles, and subcutaneous abscesses. Hauduroy³¹ has also noted definite improvement in severe carbuncles. Bazy⁴⁰ has reported very favorably on its application in various localized pyogenic infections. Gougerot and Peyre⁴¹ claim to have cured two cases of sycosis by this mode of treatment. They opened the individual pustular elements and inoculated the bacteriophage into each with the aid of a capillary pipette. A compress moistened with bacteriophage was then placed over the area. Definite improvement was observed after eight to ten applications. Nelson Barbosa⁴² has reported good results in staphylococcus cystitis, while McKinley⁴³ has reported favorably on staphylococcus wound infections.

In furunculosis, d'Herelle recommends a subcutaneous injection of about 1 cc. of a virulent bacteriophage. Another dose may be given twenty-four to forty-eight hours later. In the case of carbuncles and abscesses, 1 to 2 cc. should be injected in small quantities in the immediate vicinity of the lesion. In septicemia d'Herelle would administer 2 to 3 cc. intravenously, and in urinary infections two subcutaneous injections of 1 cc. each, administered at an interval of twenty-four to forty-eight hours. At the same time a morning and evening instillation of the bladder should be made with a 1:4 dilution of the bacteriophage in physiological saline. Since the staphylococcus is a heterologous species it is important to use a virulent polyvalent phage for therapeutic purposes.

STREPTOCOCCUS INFECTIONS

In 1923 McKinley⁴³ reported a therapeutic result in a streptococcus abscess of the lung. Following the rib resection there was considerable drainage of a decidedly foul odor. After two injections of an antistreptococcus bacteriophage into the cavity there was a rapid diminution in the quantity and offensiveness of the discharge. In five days there was practically no discharge and no odor. Dutton⁴⁴ has recently called attention to the fact that the bacteriophage probably

plays an important rôle in spontaneous recoveries from streptococcus infections.

BUBONIC PLAGUE

The latest disease to be treated in this way seems to be bubonic plague. D'Herelle⁴⁵ has recently reported rapid recoveries in four cases of bubonic plague taken off shipboard at Alexandria. In all of the cases the general condition of the patient improved within a few hours after the antiplague phage was injected. Naturally the small number treated does not justify a conclusion at the present time. It is indeed to be hoped that a satisfactory therapeutic measure for this disease is forthcoming in the bacteriophage.

CONCLUSIONS

A review of the literature indicates that the bacteriophage may exercise either a prophylactic or a therapeutic action in certain infectious diseases. We cannot, however, consider the subject closed. Further studies to explain the irregularity of the results are clearly indicated. The apparent harmlessness of the bacteriophage, together with the hopeful results already reported, should encourage further investigation in this direction.

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CHOLESTEROSIS OF THE GALL BLADDER *

II. THE SURGICAL ASPECTS

By E. STARR JUDD, M. D.
Rochester, Minnesota

AND
STANLEY H. MENTZER, M. D.
San Francisco

IN a previous paper we recorded the clinical data obtained from a study of one thousand cases of cholesterosis of the gall bladder, half of which were associated with gall-stones. The clinical data in the two series showed a striking parallelism, for the presence of stones did not materially alter the clinical picture of this disease. This paper is concerned with the surgical aspects of the disease as revealed by the same series of cases, all of which were surgical.

PREOPERATIVE CLINICAL DIAGNOSIS

The clinician diagnosed gall-bladder disease preoperatively in 85 per cent of the stone-free cases and in 88 per cent of the gall-stone cases. When he attempted to define the type of gall bladder lesion, however, and determine when there were stones he fell into error in many instances. Gall-stones were diagnosed in 24 per cent of the stone-free patients and overlooked in 45 per cent of those with stone. This fact seems of major importance to us, as it suggests the relative unimportance of gall-stones in cholesterosis of the gall bladder. The primary disease is the fat disturbance in the gall bladder; stones are apparently but an incident in this lesion.

In 2 per cent of the cases a diagnosis of pelvic disease alone was made, and gall-bladder lesions

* This is the second of two papers on this subject. The first paper being printed in this journal, in last month's issue.
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were also found at operation. In 5 per cent of the cases a diagnosis of chronic appendicitis had been made when gall-bladder disease existed concurrently (Table 1). Our previous necropsy studies have shown that cholesterosis of the gall bladder occurs in a relatively high percentage of adults (38 per cent). It may give little or no clinical evidence of its presence or, on the other hand, it may be the sole etiologic factor when there is severe epigastric distress, as has been previously demonstrated.

ROENTGEN-RAY DIAGNOSIS

The roentgen-ray diagnoses were interesting because of the high percentage of errors. Unfortunately this series began before the Graham-Cole technique was adopted, so that these statistical data do not represent the present diagnostic value of the roentgen ray. We can compare the relative merits of this new technique, however, by studying the reports of the last year, when the Graham-Cole technique alone was employed, and the reports of previous years. The roentgen-ray

TABLE 2
ROENTGEN RAY VERSUS PATHOLOGIC DIAGNOSIS

Pathologic diagnosis	Roentgen-ray diagnosis				Total Roentgen rays, per cent
	Diseased gall bladder, per cent	Stones, per cent	Questionable, per cent	Negative, per cent	
Cholesterosis	23.3	8.8	2.6	65.1	52.2
Cholesterosis and stones	15.0	41.0	3.6	40.1	47.8

diagnosis was correct in 62 per cent of the stone-free and 91 per cent of the gall-stone cases in the former, as contrasted with 27 per cent and 41 per cent, respectively, in the latter (Table 2). In the latter series 65 per cent of the stone-free cases were called "negative" and 8 per cent were said to be complicated by stones, and stones were overlooked in 40 per cent of the stone cases.

The Graham-Cole technique has decidedly improved the roentgen-ray diagnosis of gall bladder disease, although the percentage error is still quite high. Especially is this true in the cases of cholesterosis without stones. Positive diagnoses are reasonably accurate, but negative reports are not of great value.

PREVIOUS ABDOMINAL OPERATIONS

Forty-four per cent of the patients without stones and 34 per cent of those with stones had undergone abdominal operations previously. In 13 per cent of the former group and in 9 per cent of the latter the operation was drainage of

TABLE 1
CLINICAL VERSUS PATHOLOGIC DIAGNOSIS

Pathologic diagnosis	Gall bladder disease, per cent	Gall stones, per cent	Ulcer, per cent	Appendicitis, per cent	Pelvic disease, per cent	Indeterminate, per cent	Unexpected operative finding, per cent	Gall bladder and adjacent disease, per cent	Stones and adjacent disease, per cent
Cholesterosis	41.6	22.4	4.8	6.0	0.2	1.6	2.2	19.8	1.4
Cholesterosis and stones	25.2	49.0	2.6	5.4	2.4	1.0	1.0	8.8	4.6

TABLE 3
PREVIOUS ABDOMINAL OPERATIONS*

Disease	Cholecystostomy, per cent	Appendectomy, per cent	Pelvic, per cent	Gastric, per cent	Appendiceal and pelvic, per cent	Total, per cent
Cholesterosis	13.2	39.2	20.5	2.2	24.6	43.8
Cholesterosis and stones	8.7	33.1	30.2	2.9	24.4	34.4

*Not performed at Mayo Clinic.

the gall bladder (Table 3). Appendectomy and pelvic operations formed the major portion of the remainder.

This is a surprisingly high percentage of patients with gall bladder disease requiring secondary operations. Obviously cholecystostomy is not a satisfactory method of treating cholesterosis of the gall bladder. It may give temporary clinical relief, and may be justifiable in selected cases, but it does not remove the lesion, as secondary cholecystectomy has so often proved. Moreover it would seem from the percentage of secondary abdominal operations that cholesterosis of the gall bladder has not been adequately studied by surgeons hitherto. We do not mean to suggest that operations are indicated in all such cases. Indeed, they could not be, for the symptoms would not warrant them in many instances and often patients are totally without abdominal distress. But patients complaining of pain definitely situated in the upper abdomen, besides their digestive disturbances, should be more carefully investigated. A history of biliary upsets can frequently be obtained and these should be thoroughly studied before other abdominal operations are undertaken. Judd has shown that cholecystectomy will relieve these patients of their distress if pain is a dominant feature in their complaint.

RECENT OPERATIVE PROCEDURE

Cholecystectomy was performed in all but one of the one thousand cases of cholesterosis of the gall bladder; cholecystostomy alone was done in that case. Choledochostomy was performed in 1 per cent of the stone-free cases and in 5 per cent of the gall-stone cases. The appendix was removed almost as a routine because of the well-known association of appendiceal and gall-bladder disease. Peptic ulcers were found in 5 per cent of the stone-free and in 3 per cent of the stone cases, and excision of the ulcer or gastrojejunostomy was performed also in these cases (Table 4).

Drains were placed in the liver fossa in 33 per

TABLE 4
OPERATIONS FOR CHOLESTEROSIS

Disease of gall bladder	Cholecystectomy only, per cent	Cholecystectomy and choledochostomy, per cent	Cholecystectomy and appendectomy, per cent	Cholecystectomy and gastroenterostomy or excision of ulcer, per cent
Cholesterosis	39.0	1.4	53.8	5.8
Cholesterosis and stones	39.4	5.0	51.6	3.2

cent of the stone-free and in 43 per cent of the gall-stone cases. A recent tendency among surgeons is to avoid the use of drains, however, so that in 1925 drainage was instituted in only 21 per cent of the cases in which cholecystectomy was performed at the Mayo Clinic. The elimination of the drain, provided the operative site is perfectly dry, is considered a decided advance. It decreases postoperative pain, hastens the healing of the wound, and lessens the possibility of bile drainage, which so often occurs with even a small Peñrose drain. We have neither had any disastrous results without the drain nor observed any postoperative complications that might have been attributed to its want. However, the selection of cases must be judicious and the wound absolutely dry, or the results will be disappointing and probably even disastrous.

PATHOLOGIC STUDY

Cholesterosis was present in all of the one thousand cases. Stones were present in half the specimens. They were single in 30 per cent of the latter, multiple in 69 per cent, and "sand" in 1 per cent. Ninety-nine per cent of the stones belonged to the "cholesterin-rich" group. In one instance bilirubin calcium stones were found in the cystic duct also. In only four instances were the stones "common" stones, that is, deeply pigmented cholesterin stones. The pigmentation of cholesterin stones is due to bile pigment, which we believe is deposited only in cases of inflammation of the gall bladder. The extremely high percentage of cholesterin-rich stones lends support to our theory that cholesterosis of the gall bladder is primarily a metabolic disturbance.

Cholesterosis alone, as the "strawberry" gall bladder, was the diagnosis in 53 per cent of the stone-free group and in 82 per cent of the stone group, and as the papillomatous gall bladder, in 47 and 18 per cent, respectively. The diffuse and localized lipoid accumulations were combined in 34 per cent of the stone-free and in 10 per cent of the stone-containing specimens.

During four years at the Mayo Clinic (1921-1925) cholecystectomy was performed 4409 times. Twenty-six per cent of the removed gall bladders showed cholesterosis and approximately 40 per cent of the latter contained stones.

PANCREATITIS

Pancreatitis was determined grossly at the time of operation by the size and feel of the organ. This, of course, is not an accurate method of diagnosis, as postmortem studies have shown. In 11 per cent of the stone-free cases in this surgical series and in 16 per cent of the gall-stone cases pancreatitis was associated, according to the "corn-cob feel" of the organ (Table 5), but in a previous necropsy study we showed that pancreatitis, as determined microscopically, was present in only about 7 per cent of cases without gall-bladder disease and in 5 per cent of those with diseased gall bladders. From these data it

TABLE 5
PANCREATITIS DETERMINED BY GROSS EXAMINATION
AT OPERATION

Disease of gall bladder	Grade 1, per cent	Grade 2, per cent	Grade 3, per cent	Grade 4, per cent	Grade +, per cent	Per cent of total
Cholesterosis	50.0	29.6	3.7		16.6	10.8
Cholesterosis and stones	54.3	27.1	9.8	2.4	6.1	16.2

would seem that palpation is an inaccurate method of diagnosing inflammatory pancreatitis.

HEPATITIS

Hepatitis, as determined by the gross appearance of the liver at the time of operation, was noted in 27 per cent of the stone-free cases and in 14 per cent of the gall-stone cases (Table 6). These data would seem inaccurate, as experimental and necropsy studies have shown the very intimate association of infections of the gall bladder and liver. But when we think of cholesterosis of the gall bladder as a non-inflammatory lesion and the stones as metabolic in origin instead of bacterial we can more readily understand these data. It is true that most livers show more or less inflammation in areas adjacent to diseased gall bladders, but grossly this can be determined in only about 60 per cent of the cases, as shown in our necropsy series. With gall bladders obviously inflamed and containing deeply pigmented common stones, gross hepatitis is associated in almost 90 per cent of the cases. By contrast, hepatitis was present in only 27 per cent of the stone-free cases of cholesterosis. Certainly these data are valuable to the surgeon, for they show that cholecystectomy in cholesterosis of the gall bladder, when indicated, is a prophylactic measure. If the gall bladder is not removed secondary infection and probably stones will result. Hepatitis is then inevitable. The surgeon should be warned, however, that cholecystectomy for cholesterosis of the gall bladder will yield satisfactory clinical results only when pain is a dominant symptom.

SUMMARY AND CONCLUSIONS

The clinical diagnosis of gall bladder disease is correct in about 85 per cent of cases, but it is impossible to determine clinically the type of disease in as large a percentage and whether stones are present in about 35 per cent of cases of cholesterosis of the gall bladder. The Graham-Cole technique has more than doubled the roentgenoscopic accuracy of the diagnosis of diseases of the gall bladder, but negative films are not of

TABLE 6
HEPATITIS DETERMINED BY GROSS EXAMINATION
AT OPERATION

Disease of gall bladder	Grade 1, per cent	Grade 2, per cent	Grade 3, per cent	Grade 4, per cent	Grade +, per cent	Per cent of total
Cholesterosis	33.8	29.3	11.2	3.7	21.8	26.6
Cholesterosis and stones	48.5	41.1	5.8	0	4.4	13.6

decided value. Cholesterosis of the gall bladder, with or without stones, is a surgical problem provided pain is a dominant symptom.

Thirty-nine per cent of the one thousand patients in this series had had some type of abdominal operation for a lesion other than cholesterosis of the gall bladder. In 11 per cent of the latter this was drainage of the gall bladder. This shows that secondary abdominal operations are performed in an unnecessarily high percentage of cases. Cholecystectomy is the operation of choice. This was performed in all but one case. Choledochostomy also was performed in 3 per cent of the cases. Drainage of the liver fossa was carried out in 33 per cent of the stone-free, and in 43 per cent of the gall-stone cases. However, with the present technique drainage is not required in 80 per cent of cases.

In 30 per cent of the five hundred cases with stones the stones were single. In 99 per cent of all the cases the stones were of the cholesterin-rich type. This lends support to the theory that cholesterosis of the gall bladder is primarily a metabolic disturbance. Twenty-six per cent of gall bladders removed as a routine show cholesterosis. Inflammatory changes in the pancreas and liver are much less evident with cholesterosis of the gall bladder with and without stones than other forms of gall-bladder disease. Pancreatitis was diagnosed grossly in 11 per cent of the stone-free and in 16 per cent of the gall-stone cases, and these figures would probably have been reduced by microscopic examination. Hepatitis was grossly demonstrable in 27 and 14 per cent of the cases, respectively.

516 Sutter Street.

PRE- AND POSTOPERATIVE CARE OF THE
GOITER PATIENT*

By R. S. DINSMORE, M. D.
Cleveland, Ohio

WHILE it is true that the preparation of the uncomplicated case of hyperthyroidism for operation is a fairly easy problem, nevertheless, taken as a whole, there is no group of patients which requires a more careful period of preparation and observation.

ROUTINE PREOPERATIVE PREPARATION

The routine preparation of an uncomplicated case consists of the following measures: (1) absolute rest in bed; (2) luminal or bromids each night; (3) large quantities of fluid, at least 3500 cc. every twenty-four hours; (4) tincture of digitalis; and (5) Lugol's solution; and ordinarily in the uncomplicated case the operation can safely be performed in from six to eight days after the patient enters the hospital. In the presence of complications, however, such as edema, extreme dehydration with delirium, or persistent cardiac irregularities, additional measures must be employed and the preoperative period is usually longer.

Since we began the use of *Lugol's solution*, as

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suggested by Plummer, we have been able to perform a lobectomy in many cases in which preliminary ligations were formerly indicated, and thyroidectomy in many cases in which formerly only a lobectomy could be performed. However, the use of Lugol's solution before the patient comes to the surgeon increases the problem presented by certain cases, since the maximum improvement which should be gained by its use usually occurs in from seven to twelve days, and the clinical picture presented by the patient at this stage can never be duplicated. In such cases, therefore, in which, if Lugol's solution had not been given before the patient came to the hospital, we should undoubtedly have been able to perform a lobectomy or a thyroidectomy, it becomes necessary to perform a trial ligation. If no reaction whatsoever follows the ligation, the lobectomies can be performed at once.

We use Lugol's solution routinely in any case in which the diagnosis of hyperthyroidism is made; and, as stated above, we have found that almost uniformly, in an uncomplicated case of hyperthyroidism, the maximum improvement is reached in about eight or ten days. It should be emphasized that in any case the greatest improvement from the use of Lugol's solution follows its use for the first time; also that, according to our observations, the degree of improvement always bears a direct relation to the amount of hyperplasia within the gland.

In a few cases we have been misled by feeling that the patient was in a better condition after

the course of Lugol's solution than was actually the case, and rather severe reactions have followed the operation. Pemberton has had similar experiences and feels that an extra day or two of rest should follow the moment of apparent maximum improvement.

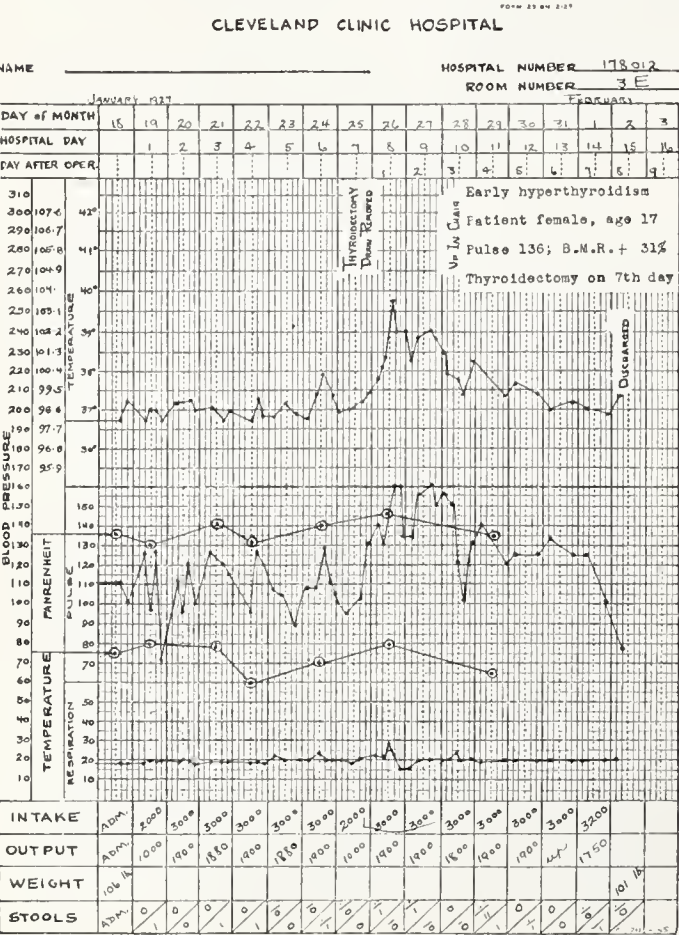
The *protection of the myocardium* is extremely important, if the cardiac arrhythmias which so frequently follow thyroidectomy are to be prevented. The cardiac complications of hyperthyroidism usually appear in the following order: first, a simple tachycardia, which is followed by dilatation of the heart, this in turn being followed by functional murmurs and by cardiac irregularities, by far the most frequently encountered form of which is auricular fibrillation, although every type of cardiac irregularity will be noted in a large series of cases of hyperthyroidism. In a recent series of cases of hyperthyroidism associated with auricular fibrillation of which Anderson has made a special study, he has found that in 60 per cent the action of the heart became regular after the final operation.

Our routine treatment of these cases is the administration of 30 minims of digitalis every four hours for six or eight doses, followed by smaller doses, 15 to 20 minims every day, until the time of operation. We have found that if this routine is followed there is a much smaller incidence of postoperative auricular fibrillation, and while it is true that auricular fibrillation may be present for some time without proving fatal, nevertheless the fatal cardiac complications of hyperthyroidism usually begin with a fibrillating heart. It must be remembered that when digitalis is used it is not with the idea of attempting to control the tachycardia, but it is employed in those cases in which there is a slight dilatation of the heart and frequent irregularities.

Quinidin is used very infrequently, although in some cases it may be impossible to establish the normal rhythm of the heart before operation without it. This, however, has been true in only a very few cases. In fact we have very seldom been forced to use quinidin either before or after operation in order to reestablish the normal rhythm of the heart.

It is our policy to use fairly large doses of luminal in these cases, and I notice that the statement is made in Bartlett's recent book that patients with hyperthyroidism can tolerate large quantities of luminal. We have found that many of these patients are unable to take bromids. In uncomplicated cases the patients very seldom need morphin or codein, but of course this does not hold true in cases in which severe complications are present.

The patients with myocardial decompensation, edema, and anasarca—a complication which we occasionally see—have to have the same treatment as patients with cardiorenal disease. Of course with patients in this group novasurol is used together with tincture of digitalis. They are placed on a restricted salt-free diet, and their fluid intake is limited to 1000 cc. every twenty-four hours. Little difficulty is encountered in the treatment



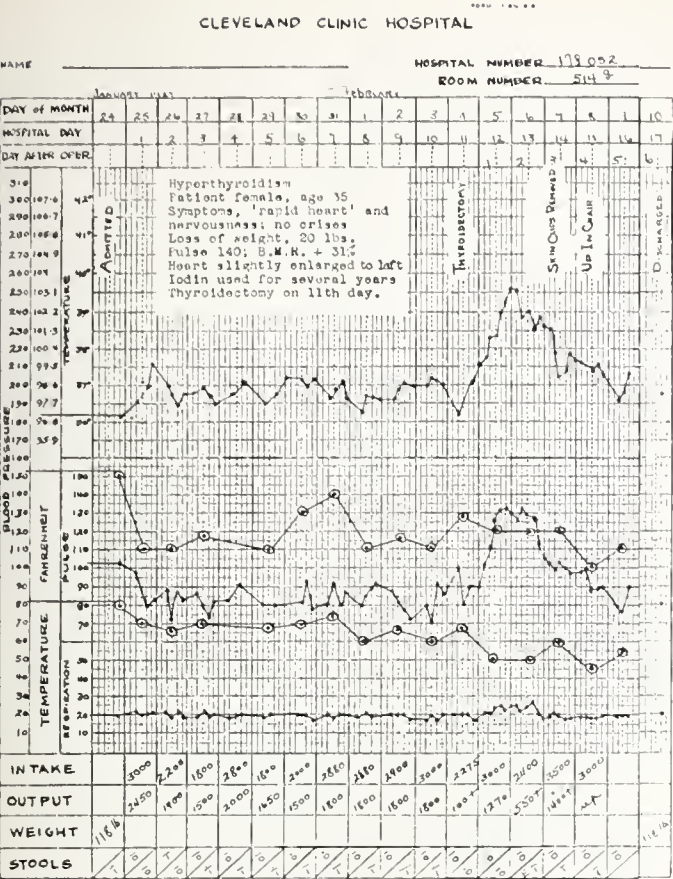


Fig. II—Chart showing progress in a case of hyperthyroidism.

of these patients, and thus far we have had no reactions from the use of novasurol.

In my opinion, the patient with acute hyperthyroidism presents one of the most baffling problems in the whole field of medicine. Patients who have had acute gastrointestinal crises with nausea and vomiting, lasting for several days, and enter the hospital delirious and in a dehydrated condition, are desperate risks. Since the opening of the Cleveland Clinic Hospital some thirty-two months ago, forty-five cases of this type have died before they could be prepared for operation. I believe that if the delirium of hyperthyroidism lasts longer than from forty-eight to seventy-two hours, the prognosis is very poor. We hoped with the use of Lugol's solution to be able to control these patients, but we have not been able to do so. Large quantities of fluids also are forced, and blood transfusions are done. We have observed that the greatest improvement in these patients follows the transfusion of whole blood, one of them occasionally becoming rational immediately after the transfusion. In the majority of these cases, however, the transfusion has little effect.

It seems impossible to explain why the prognosis is so poor in these cases. The blood chemistry studies give normal findings and postmortem examinations which have been made in such cases have shown no condition which could account for death.

The patients who have gone through severe attacks of acute hyperthyroidism must, of course, be handled with extreme care, and I, personally, feel that they should not be operated upon for

from four to six weeks after a period of delirium, as occasionally operation precipitates an acute attack in which the psychosis may become permanent, or which may even terminate fatally. In determining the operability of these cases there are many factors to be considered, and it is especially important that several points in the history be carefully investigated. Experience has taught us that the patient who has recently been through an acute gastrointestinal crisis may have a severe reaction after any operative procedure. This is also true of the patient who has had a marked loss in weight within a short period of time, and of the patient who has recently passed through an acute phase of the disease. The history of any decompensation is also of importance in this respect.

As stated above, we have lost the advantage of Lugol's solution in many of these cases for the reason that the patients have taken iodine for a long period of time before coming to the hospital. It is important to know whether or not this is the case before any operative procedure is instituted.

If, therefore, after a patient has rested for a period of from eight to ten days, the pulse curve has reached a base line which is stationary, there is no edema, no pulse deficit, the heart has been protected by digitalis, the patient is mentally stable and able to take large quantities of fluids, and has a good phthalein output, and if Lugol's solution has been given over the same period, then some type of operative procedure can safely be performed.

It should be emphasized, however, that many of these patients present the same problems as those presented by patients with cardionephritic symptoms and that blood urea and phthalein estimations must be made frequently. Novasurol is occasionally used in the decompensated cases if the edema does not clear up quickly under the ordinary measures.

TYPES OF OPERATION

We depend, therefore, entirely upon a careful history of the case and upon physical examination in determining operability. The basal metabolic rate is used only for differential diagnosis.

As for the type of operation, that also depends upon the patient and his condition. Old and young patients are routinely ligated, all children under 14 and all patients over 60 usually having at least a trial ligation. In our series of cases in children we have found that although they are apt to have very severe reactions to all operative procedures, on the other hand they receive greater benefit from ligation than do adult patients. Frequently they return for the final operation, three months after the ligations, so improved that it is difficult to believe that they are the same children.

With the lengthening of the period of preoperative preparation, the use of Lugol's solution, digitalis, bromids and luminal, and the maintenance of the water balance, not only has the mortality rate been reduced, but the period of postoperative care has been reduced to a minimum in practically all cases.

In the uncomplicated cases the small rubber

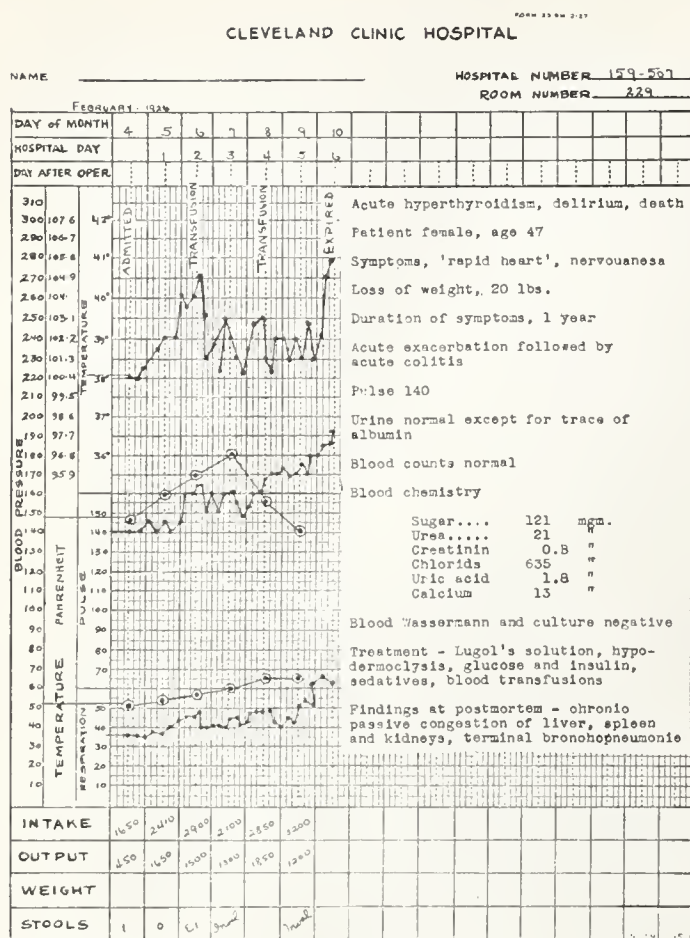


Fig. III—Chart showing the clinical course in a case of acute hyperthyroidism that ended in death.

drains are always removed at the end of twenty-four hours, the Michel skin-clips at the end of the third day, and the patient is up and around on the fifth day, being discharged ordinarily on the evening of the sixth or the morning of the seventh day.

POSTOPERATIVE CARE

Due to the use of Lugol's solution and the absolute control of the patient after operation, acute hyperthyroidism is rarely seen after operation. In comparing the charts of patients in a recent series with those of series of four or five years ago, it was found that the temperature and pulse are now usually somewhat higher. However, formerly patients with a temperature of 103 degrees and a rapid pulse invariably seemed toxic and ill, whereas the same elevation of temperature at this time is not accompanied by toxicity, but the patient is apparently in an excellent condition.

In the cases in which convalescence is prolonged, therefore, this is almost always because of some postoperative complication. If the patient becomes extremely ill after operation, and has a high temperature and a rapid pulse, this is very frequently due to the collection of serum in the wound and in many cases the temperature of the patient will drop as soon as the serum is removed, the removal of even a very small amount of serum changing the entire picture.

The immediate complication with which we are always concerned is a *postoperative hemorrhage*, for it demands immediate care. There are several points in the treatment of a postoperative hemor-

rhage which are important. These patients do not die from a loss of blood, but from suffocation caused by the pressure of the blood-clot upon the trachea. They become cyanosed, dyspneic, and very quickly lose consciousness, and even if the period of unconsciousness is brief they may not recover. Of course as soon as the blood-clot is removed, the condition quickly clears up. If possible, it is best to remove the clot under very light nitrous oxid-oxygen anesthesia, as it is very difficult to catch the bleeding point under local anesthesia. In many cases, however, the clot must be removed immediately and a pack placed in the neck until the bleeding point can be caught.

De Quervain, basing his opinion upon the findings in a large series of these cases, feels that most of the postoperative hemorrhages come from the upper pole of the thyroid. We do not have any statistics on this point. It should be borne in mind, however, that one should be able to control a hemorrhage from either the inferior or the superior pole very easily by pressing the bleeding point forward against the muscles and the skin, the artery being held between the first two fingers and the thumb, with the thumb on the outside of the wound and the two fingers beneath the bleeding point, until the field can be thoroughly cleaned out and the bleeding point caught.

A second very great danger that attends a postoperative hemorrhage is an injury to the recurrent laryngeal nerves. This is especially apt to occur if the hemorrhage is from the inferior pole, for if the vessel has retracted in the effort to catch the bleeding point the hemostat may be placed on the nerve. There is also a small vessel close to the tracheoesophageal groove which may bleed and it, of course, is very near the site of the recurrent laryngeal nerve. The nerve is not so apt to be caught if the hemorrhage is from the superior pole, unless the point of the hemostat is directed toward the larynx and is caught very close to it.

Still another type of postoperative hemorrhage which may occur and which, in our experience, has been practically always fatal, is an extravasation of blood into the mediastinal space. This is most apt to occur after operations for intrathoracic goiter. In such a case the patient's pulse becomes very rapid, gradually diminishing in quality, and he grows very pale and restless. The mediastinal dullness is increased and the patient finally dies as the result of absolute pressure upon the heart walls. It is our policy, if we are not certain that complete hemostasis has been secured in these cases, to place a gauze pack in the cavity for twenty-four hours and to make a secondary closure. It must be remembered that in most cases the so-called cavities of intrathoracic goiter are quickly obliterated by the expansion of the lungs and that before the operation is completed the whole operative field can be clearly seen. However, there are a certain number of these cases in which the goiter is of long standing in which the walls of the cavity have become fixed, so that a very large cavity is left and it may be very difficult to see all parts of it. Under these

circumstances it is well to pack the wound open. A very distressing complication which may follow an operation upon the thyroid gland is *stridor*. This is always due to an injury of one or both of the recurrent laryngeal nerves, the so-called "collapse of the trachea" being, in my opinion, largely a myth.

In the treatment of *stridor* one must first be absolutely sure that there is no blood-clot behind the preglandular muscles and that the serum has all been removed, for often the removal of even a small amount of serum, or the mere loosening of a drain may release pressure which, though slight, was sufficient to cause the *stridor*.

If a laryngoscopic examination can be made it is very helpful, but care must be taken that it is done very quickly and deftly, for the patient may quickly become dyspneic and the *stridor* increase. It is usually found, of course, that the patient has a very narrow breathing space. We have frequently noticed that these patients are extremely restless and are not controlled by means of the usual sedatives, and we have also noticed that as soon as a tracheotomy tube is inserted they invariably go to sleep and rest for a long time.

We always advise early tracheotomy in case of *stridor*, and feel no hesitancy in opening the trachea, even though there is no cyanosis, for if the *stridor* persists for several hours the patient may suddenly become exhausted or he may even become unconscious, and when that occurs the patient occasionally does not recover even after a tracheotomy. When a tracheotomy is performed the incision is always made transversely between the tracheal rings, and the tracheotomy tube is never left in place longer than two or three hours. After it has been left in place for that length of time the patient usually has no further difficulty, and if the tracheal rings have not been severed,

the opening closes up very rapidly and the patient makes an uneventful recovery.

The *cardiac complications* which may follow thyroidectomy are simply tachycardia and auricular fibrillation, or auricular flutter. These complications are largely preventable by careful digitalization. If the pulse rate continues to rise above 130 we give digifoline hypodermically, as tachycardia may lead to auricular fibrillation, and this may be followed by a fatal dilatation of the heart. We have seen a marked diminution in the incidence of postoperative cardiac complications since we have used digitalis.

Tracheitis is a postoperative complication which is occasionally seen, and we feel that it is directly related to the exposure of the trachea at the time of operation. We are very careful, therefore, not to divide any of the fascia over the trachea or in any way to expose the tracheal rings. We are very careful also to leave a triangular portion of the thyroid in the tracheoesophageal region as a protection for the recurrent laryngeal nerves and for the parathyroid bodies; thus only a small area of the anterior surface of the trachea should be exposed where the isthmus is dissected off. Tracheitis is not a serious complication in most cases, and small doses of codein every hour for six or eight hours are usually effective in relieving it.

An *infection in a thyroidectomy wound* is a very distressing complication, and must be handled radically. It is our policy to open the neck widely and to irrigate the wound thoroughly, not only because in severe hyperthyroidism the patient cannot tolerate an infection of any type, but also because there is danger that the remaining portion of the thyroid may slough, with a resultant scarring and damage of the recurrent laryngeal nerves and the parathyroid bodies. If this happens three of the most unfortunate postoperative complications that can occur in thyroid surgery may possibly result, namely, a paralysis of the recurrent laryngeal nerves, tetany, and chronic hypothyroidism.

Tetany, as a postoperative complication, is fortunately of rare occurrence. The parathyroid bodies can practically always be protected by leaving a layer of thyroid tissue over them. Occasionally a mild case of tetany is seen in which the patient complains of slight numbness and tingling of the hands and feet, and of a peculiar sense of constriction about the mouth. A slight circumoral pallor is also noted. The first measure for the relief of this condition is the removal of any wound secretion that may be present, as pressure on the parathyroids may be the cause of the disturbance. The clonic convulsions of acute tetany, in which the fingers are flexed at the metacarpal phalangeal joints, the thumb is drawn across the hand and the arms, across the chest, the toes are in extension, and the patient is in a generalized convulsion, are very rarely seen; although, of course, there is always the possibility that such a condition may develop from what seems to be a mild case.

Formerly we always used magnesium sulphate, 15 cc. of a 25 per cent solution, administered

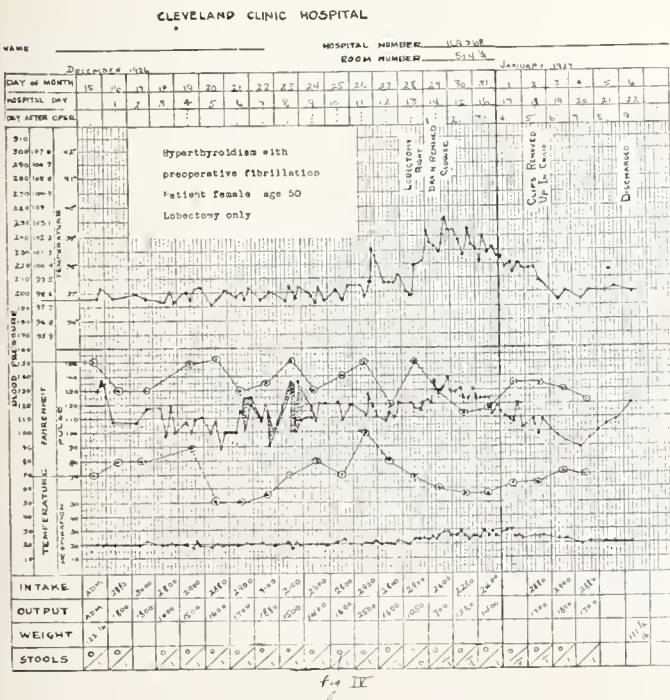


Fig. IV—Chart showing progress in a case of hyperthyroidism complicated by auricular fibrillation. The shaded portion indicates the difference between the apex beat (the upper line) and the radial pulse (the lower line).

intramuscularly, and this always relaxed these patients. However, a recurrence of the attack almost invariably occurred, and the magnesium sulphate had to be given for several successive days. Fortunately the parathyroid hormone which has been prepared by Professor Collip has proved entirely effectual in the control of this complication, and after one injection of the hormone a second convulsion almost never occurs. For this reason we give the parathyroid hormone routinely upon the appearance of numbness and tingling of the hands and feet, taking a sample of blood at the same time for the purpose of checking the blood calcium. In the mild cases we always give calcium lactate, 10 grains three times daily, with parathyroid extract, 1/10 of a grain, and a small amount of thyroid extract.

We have also found the use of the parathyroid hormone effective in the treatment of cases of chronic tetany. An interesting observation has been made that in many of these cases the calcium content of the blood was not abnormally low, so that we feel that the tetany is probably due to a disturbance of the calcium metabolism rather than to a change in the calcium content of the blood.

Nausea and vomiting is a very rare postoperative complication at the present time because of the forcing of fluids in the preparation of the patient for operation, and also because the operation is performed under analgesia. When it does occur we immediately discontinue the administration of food or fluids by mouth and inject large quantities of water under the skin by Bartlett's method; that is, 1/32 per cent novocain in normal saline solution (90 cc. of 1-500 1 per cent novocain to 200 cc. normal saline).

An acute *myxedema*, with a peculiar drowsiness and a shiny appearance of the skin, may appear after from seventy-two to ninety hours following operation, and it is accompanied by a peculiar type of nervousness which ordinarily cannot be controlled by sedatives. To prevent this, Doctor Crile has for years given the patients routinely 2 grains of thyroid extract the night before operation and 2 grains on the morning of the operation.

A transient *myxedema* is quite frequently seen following operation upon patients with hyperthyroidism, especially in those cases in which the minimum amount of tissue has been left *in situ*. When this condition occurs it usually appears three or four months after operation. The patients complain of becoming fatigued easily, of loss of memory, and of a slightly abnormal gain in weight. The skin is somewhat dry and there is a peculiar puffiness about the eyes, especially under the eyes. They often complain also of coldness of the hands or feet. For this condition we prescribe a grain of thyroid extract each morning for one month, and this is usually sufficient to prevent any further difficulty. The 30 grains of thyroid extract is obviously not enough to take care of the needs of these patients, but probably

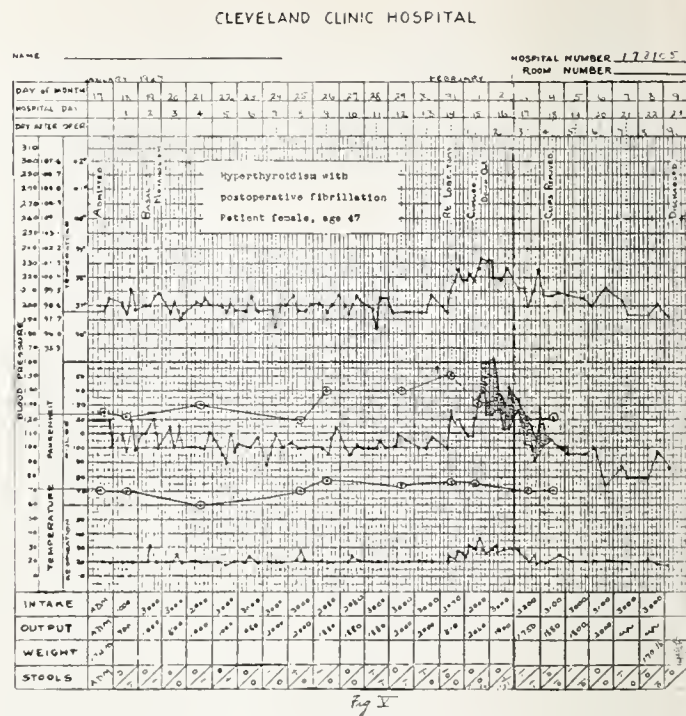


Fig. V—Chart showing progress in a case of hyperthyroidism in which auricular fibrillation developed after the operation.

The shaded portion indicates the difference between the apex beat (the upper line) and the radial pulse (the lower line).

stimulates the remaining portion of the thyroid tissue to a normal activity.

When a true chronic myxedema follows thyroidectomy it offers an extremely difficult problem. It would seem that by the administration of sufficient thyroid extract one should be able to establish and maintain a normal metabolism. However our experience has been that this is an extremely difficult thing to do; the various subjective symptoms and the pulse rate and metabolic rate are very difficult to control.

OPERATIVE MORTALITY

The mortality in thyroid surgery is approximately 1 per cent. In my own cases half of the deaths have been caused by emboli, and this problem of course is unsolved. I have also been unfortunate enough to lose two cases from postoperative collapse of the lung and, although this complication has not often been noted, I am sure that it occurs more frequently than we had formerly suspected. A very interesting fact was brought out in the last case. Although the condition was readily diagnosed before the post-mortem examination, the patient presented all the symptoms of a so-called "acute hyperthyroidism reaction."

IN CONCLUSION

In conclusion we may state that by means of a careful preoperative study of the case both from the history and the physical examination; by absolute rest in bed and treatment with luminal, Lugol's solution and digitalis; followed by graded operations with a careful guarding against postoperative complications, the outlook for ultimate recovery in cases of hyperthyroidism has been made as hopeful as that offered the patient undergoing any major operation.

Cleveland Clinic.

PHTHISIS—ITS SURGICAL MANAGEMENT*

PREOPERATIVE CONSIDERATIONS

By HENRY HOIT, M. D.

DISCUSSION by *Leo Eloesser, San Francisco; Philip King Brown, San Francisco; Harold Brunn, San Francisco; Charles D. Lockwood, Pasadena.*

FOR more than two decades attempts have been made to inhibit the function of the lung most affected by tuberculosis for the purpose of promoting its healing. Encouraged by the apparently remarkable improvement which so many patients have made after an experience with pleural effusion and reasoning that the result might be due to the incidental "compression" of the lung, men have tried earnestly in various ways to check the ability of the lung to expand. Tightly strapping the thorax, placing weights upon the chest wall, partially filling one or both sides of the thoracic cavity with air and removing sections of the ribs, have been and are being practiced as methods to control the function of the lung and to produce a therapeutic effect.

FOCAL REST

How to account for the improvement so often realized by patients after an experience with simple serous effusion is not so easy as it would appear to be, the situation within the thorax in the presence of fluid is so complicated. It may be that the fluid exerts a hydrostatic force, compressing the lung and interfering with its functional activity. It may be that it serves as a splint to the lung, effecting its immobilization and accomplishing functional rest. Or it may be that the effusion is a phase of tuberculo-immunity and has an immune-biologic action when absorbed. However it may happen, noticeable improvement frequently follows the absorption of the effusion although it seems not to be related in time or degree to the volume or persistency of the fluid. It is barely possible that the effusion is just a coincidence and that the improvement observed is not a consequence of it, directly or indirectly.

What seems to be a more likely explanation to account for the improvement in certain cases of active pulmonary tuberculosis is the incidental "contraction" of the lung and the ensuing changes in the blood supply, conditions which appear to be favorable to reparative processes in pulmonary tissue. We know that "contraction" or atelectasis of the lung occurs naturally about a focus of infection in the parenchyma. In tuberculosis it is observed in the beginning and until healing has taken place. It plays a part in the barrier which nature forms about the lesion. It may be seen in the roentgenogram and it may be perceived through the adventitious sounds characteristic of it. It represents the forces of defense and repair concentrating on the process. It tends to restrain the dissemination of infection—to prevent bacillary metastases. It is nature's method of facili-

tating healing and the formation of fibrous tissue.

Improvement is so often witnessed when more than a common amount of "contraction," collapse or relaxation of the lung tissue is permitted, as by an effusion, that it would seem advisable to try to induce such a state and the associated conditions which evidently are so favorable for healing. If the methods employed are feasible methods, it is almost our duty to apply them for the sake of improving the situation of those affected with phthisis.

A review of the more recent literature reveals much in the way of facts to justify the inference that an exceptionally good result is quite apt to follow "contraction" of the lung, artificially induced. The reports published tend to confirm our opinion that the methods employed, particularly pneumothorax and multiple costectomy, are real adjuvants in the management of phthisis. Pneumothorax seems to be especially valuable, as it may be used to induce relaxation in one or both lungs simultaneously. In the presence of gas in the thoracic cavity there often occurs an effusion which seems to operate beneficially. When there are holes in the lung and widespread fibrous pleurisy "contraction" of the lung may be accomplished by reducing the volume of the thorax. The volume may be reduced commensurately with the amount of lung tissue destroyed by removing larger or smaller sections of the ribs. This method—multiple costectomy—should be regarded not as a substitute for pneumothorax; it has its own field of usefulness. In every case where these methods have been employed, bed rest should precede and follow their application. Entire credit for the improvement witnessed may not fairly be given to the method of course, as the normal coefficient of improvement from the bed rest may not be determined.

RÔLE OF SURGERY IN PHTHISIS

Before setting forth certain views with respect to the advantages of surgery in the management of the advanced stage of pulmonary tuberculosis I should like to call attention to one or two points. It is our opinion that very few patients with phthisis have the ability to make a "cure" in an anatomical, biological or any other sense, through the natural processes of resistance, defense and repair, unless they are assisted surgically. It is also our opinion that few patients with phthisis have a chance to recover their health through the aid of surgery unless the method employed is intelligently related to the requirements imposed by the physiological and pathological conditions within the thorax and lungs. We believe that patients with lesions quite alike do not have an equal chance to recover health; individuality makes the difference. We believe that patients with lesions quite unlike, other things being equal and allowed for, do not have a better chance to recover by the aid of surgery unless the method is intelligently applied. In other words, fixed ideas or standards with respect to type of cases or method, should not be entertained. Comparatively speaking, less attention should be paid to pathology and more attention should be paid to alteration

* Read before the General Surgery Section, California Medical Association at the Fifty-Sixth Annual Session April 25-28, 1927. See also Bedside Medicine Department in this issue, for further discussion of this subject.

of function; less attention should be paid to the manner in which the method is applied and more attention should be paid to what may be accomplished by it in the particular case. Herein lie possibilities of remarkable success or pitiful failure.

Among the advantages claimed for surgery in the management of phthisis are the following:

First: Surgery may save the patient time, punishment, and money. It may accomplish in a few weeks what months of bed rest might not bring about successfully, if at all. After one has witnessed the relatively rapid improvement in a febrile, toxic patient following directly the introduction of a few hundred cc. of air into the pleural cavity or following a well-executed multiple costectomy, one cannot but realize that the patient is being saved months of invalidism, suffering, and expense.

Second: Surgery may exercise control over the situation in the lungs irrespective of the cooperation of the patient. With one or both lungs artificially deflated up to the limit of tolerance, a patient may not pursue activity without disturbing his respiratory comfort.

Third: Surgery may induce relaxation of pulmonary tissue. Apparently essential to the localization and healing of a focus of infection in the lung is the establishment of an ample degree of atelectasis about it. This is nature's barrier to check the metastatic diffusion of germs and is a part of the process of defense and repair.

Fourth: Surgery may contribute to the deletion of the catarrhopogenic organisms contaminating the tubular structures. The tubercle bacillus is innocent with respect to the production of pus, and is a symbion more often than we realize. It is obvious that an individual may not ever be well while pyogenic organisms live at his expense.

Fifth: Surgery may make possible the apposition of the walls of cavities and the cessation of accumulation. Unless holes in the lung are closed to the invasion of microorganisms, the unhappy state of these people may not be improved.

Sixth: Surgery may permit contraction of the lung in the part which is the most seriously affected. Unless the diseased portion is well protected by defunctionalized tissue, healing is not as likely to take place so kindly in the presence of activity of the healthy portion.

Seventh: Surgery may create about the lung most affected conditions conducive to its welfare regardless of the behavior of the individual. Thus protected, a patient may pursue his occupation and become relatively self-supporting.

Eighth: Surgery may anticipate the crippling effects of natural healing, especially the embarrassment of the heart due to its displacement and fixation in an abnormal position.

Undoubtedly a larger number of susceptible people would be more successful in their struggle with pulmonary tuberculosis if their management might be undertaken and might be intelligently carried on before irreparable damage had ensued through neglect. It is altogether too evident that the danger people with tuberculosis of the lungs are in is not being sensed opportunely and that

a *laissez faire* attitude is being entertained too long toward many cases making little or no progress with respect to recovery. Standing in the way of success in the surgical management of the terminal stage of pulmonary tuberculosis is the appearance of the cases too late, due partly to the disposition of people to let well enough alone, and partly to the apparent reluctance upon the part of the profession to resort to other than medical measures until the patient is mortally ill.

If one considers all the circumstances surrounding the victims of phthisis, it is obvious that only a very few, relatively speaking, are being given a chance. Until time and experience have demonstrated the superlative advantages of bed rest plus good surgical management, it is evident that many are going to miss their opportunity to make a recovery.

In the meanwhile surgery is proving its superiority over medicine for the patient with advanced pulmonary tuberculosis, and it is accomplishing for an increasing number what nothing else can accomplish for them.

La Vina Sanitarium.

DISCUSSION

LEO ELOESSER, M. D. (490 Post Street, San Francisco)—Doctor Hoit's most interesting paper and especially the most extraordinary films of double pneumothorax which he has just shown startle us, but must command respect and attention. I should be ungrateful for the many kindnesses that he has shown me were I to enter into this discussion in any other than an open-minded and receptive, even though critical, spirit.

I do agree with him in this: that there are probably certain cases of pulmonary phthisis (by which, if I understand him correctly, he means secondarily infected pulmonary tuberculosis) that are from the beginning unamenable to conservative treatment. The great difficulty lies in recognizing which they are. Time perhaps may teach us to tell and to propose early operations in the suitable ones. For the present, however, until we learn more about the prognosis of pulmonary tuberculosis, I have hesitated in recommending operation until medical treatment has been tried and proved unavailing.

It is a dangerous thing to discuss early operation in an open mixed meeting, but Doctor Hoit's ideas cannot be passed over in silence.

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PHILIP KING BROWN, M. D. (909 Hyde Street, San Francisco)—Seven years of study of the results of surgical treatment of chronic pulmonary tuberculosis largely unilateral convinces me of several things. When the patient is first examined and the physical signs, x-ray plates and history point to a long-standing unilateral process with cavitation and evident pleural thickening, or an acute rapidly developing unilateral process with cavitation of the size of a walnut or greater, the most intensive rest treatment, including postural rest, must be followed and the physical findings should be checked by monthly x-ray plates. After two or three months at the most, if there has not been a marked and steady diminution in the febrile condition, toxicity of the patient, amount of sputum, physical signs, and size of the cavity, some surgical assistance is indicated and should be instituted immediately. The first of these is artificial pneumothorax carried to the point of producing rest in the affected lung—often complete disuse if that amount of compression be necessary to close cavities and arrest activity. If adhesions prevent sufficient collapse, then phrenicotomy may be tried as a result of which the diaphragm on the affected side is raised and a certain amount of relaxation and rest produced.

The cutting of adhesions by the method of Jacobus

or thoracotomy may be tried if a skilled operator be at hand.

Finally, if a permanent collapse be indicated we are confronted with the absolute indication for thoracoplasty, and as Doctor Hoit has pointed out, its extent and nature must be based on what the indications are for the permanent rest of the diseased lung.

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HAROLD BRUNN, M. D. (384 Post Street, San Francisco)—The application of surgical procedures for the cure of pulmonary tuberculosis is gradually gaining headway. It is right and proper, however, that progress along these lines should be extremely slow and conservative. Many of the procedures must still be considered in the formative stage and we will still have to await the collection of statistics covering various types of cases before we should optimistically advise the early resort of surgery to tuberculosis.

Statistical studies on the other hand are very difficult to evaluate because surgery is applied to so many different types of cases.

I agree with the doctor, therefore, that the most important consideration is the careful selection of cases for operation and this should be done only after conference between the surgeon, medical man and roentgenologist, and after a considerable lapse of time so that the progress of the case may be watched before surgery is applied.

It is my own belief that surgery in tuberculosis still has many limitations; that we must still not be too optimistic in our indications and prognosis.

I found on my trip east that the indications for phrenicotomies have been widely increased and are being used quite extensively, and also that after collapse therapy where the result has not been too satisfactory because of cavity at the apex, that apicolysis has been added with very satisfactory results.

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CHARLES D. LOCKWOOD, M. D. (65 N. Madison Avenue, Pasadena)—I am sure we have all been impressed by the very unusual paper of Doctor Hoit. I think we are all agreed that rest is the essential thing in the healing of tuberculosis. This not only limits the spread of tuberculous lesions in the lung, but also favors fibrosis. What Doctor Hoit speaks of as "contraction of the lung" is brought about partly by compression and partly by changes in the circulation.

All surgeons who have had experience in the treatment of tuberculosis will agree with Doctor Hoit's statement that surgical compression is logical and brings about conditions most favorable to the healing of tuberculosis. I assume that in urging early resort to surgery that the minor surgical procedures are referred to such as pneumothorax, phrenicotomy and liberation of adhesions.

I do not think in the present state of our knowledge that we are yet able to select the cases which will ultimately demand surgery for their cure. However, I believe this is the goal toward which we should strive, and that as we accumulate experience in the surgical treatment of more advanced cases we will come to recognize the type of tuberculosis that is the forerunner of these advanced cases.

It is certainly refreshing to find a medical man of Doctor Hoit's experience so open-minded and ready to accept the benefits of surgery in the treatment of pulmonary tuberculosis.

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AUTHOR (closing)—The tubercle bacillus has been recognized for years as the etiological factor, but apparently it is not responsible for the various phenomena which we recognize as tuberculosis of the lungs. Seldom does this disease follow infection; seldom does it follow infection directly; seldom does it pursue a regular course similar to other diseases of germ origin. We have reason to believe that a number of factors are operating to account for its manifestations in the lungs. We do not yet know what they are, and even if we did we might still be in the dark as to what weight any one or more of them might have in any particular case. Not knowing, therefore, what the factors are which really are responsible for

this chronic affliction, can we do more than just guess what may be the outcome? Surely no one today is basing a prognosis upon the pathological picture.

It may be true that apparent recovery occurs frequently coincidentally with the institution of certain conditions with respect to the individual and with respect to his lungs. But if we only might know what happens to him later I think that we would be convinced that very few so-called "advanced cases" do well—make favorable progress, uninterruptedly and satisfactorily. According to statistics the odds are very much against complete recovery—176 to 1. Of course no one really knows how many do well or fail because so few, comparatively speaking, have been followed all the way through.

For years we have been trusting the solution of one of the most complex medico-biological problems—tuberculosis of the lungs—to people not competent to solve it. We have kept on in the face of failure after failure, entrusting the result of our so-called "treatment" to people who ought to be the most concerned about it but in reality they have usually proven to be most unconcerned. We have expected such people, medically uneducated, with meager or no knowledge of how to live, with little or no capacity for wise self-direction, to accomplish the impossible—the "cure" of pulmonary tuberculosis. Do such statistics as are available, with respect to their success and which are at the same time reliable, encourage the idea that those who now are or who are presently to be severely afflicted are going to get well?

Now that we have methods which are proving every day to be feasible methods and which evidently are very helpful, often producing results independently of the cooperation of the patient, why postpone their application and why not attempt as soon as possible to save a situation fraught with so many evil consequences? I believe that procrastination is inconsistent with our experience; not to do all that may be done at once for an individual facing the crippling effects of the disease, is failing him. Altogether too much of serious import may happen in two or three months. Are we not too prone to delay the application of these measures, influenced by the concepts and conclusions of others without knowing how well they were considered? I am glad that more and more surgeons are becoming interested, are appreciating the possibilities and are willing to lend a hand to these people in their need.

Is it not time to admit to everybody, including patients, that "cure" is impossible, that it is futile to expect it? Is it not time to set up as a goal in place of cure "a degree of health which may justify some familial or industrial efficiency?"

Medical men—the advocates of conservative treatment—have incorporated the surgical principle of rest in their program of treatment, much to the advantage of their patients. But how many sense the fact that the rest induced by restricting the activity of the body—bed rest is only relative and, comparatively speaking, very minor in comparison to what may be induced by these surgical methods. I believe that more of them would appreciate the advantages of these measures if they could only see the remarkable changes in these people when they are applied successfully. Bed rest as practiced has promoted comfort, brought about amelioration of symptoms, produced general improvement, but it never has established permanent relief. It has acted as a blanket put over a fire or as morphin in acute appendicitis; it has covered up the menace to health and life, but has not eliminated it.

The measures surgery now offers may not be the last word in effectiveness. No one is so foolish as to believe that, but they do accomplish a greater degree of rest in the lungs than can otherwise be induced, and is not that desirable?

The history of pulmonary tuberculosis is a story of failures, medically speaking. The experience of a century indicates plainly that if success is to be realized efforts in behalf of these people—the management of their lives, their relief from environmental pressure both external and internal must be made early. The

reason why real progress has not been made is because we have been too often satisfied to apply to the lungs the principle of rest half-heartedly, whereas it should have been applied up to that point of completeness just short of lung function incompatible with life, and in time.

THE THERMOPHORE—ITS USE IN EYE THERAPY*

REPORT OF CASES

By M. F. WEYMANN, M. D.
Los Angeles

DISCUSSION by Frank H. Rodin, M. D., San Francisco; A. Ray Irvine, M. D., Los Angeles; Otto Barkan, M. D., San Francisco.

THE thermophore was devised by Shahan of St. Louis in his search for a means of combating pneumococcus ulcer of the cornea. After many painstaking experiments he found that the pneumococcus in the cornea could be destroyed by a temperature of 152 degrees F. applied directly to the infected area by means of a nickel-plated brass conductor, and that this method of destruction did less damage to the cornea than any other means of destroying the pneumococcus now in use. It was also found that the normal cornea will stand temperatures of up to 150 degrees F. applied with this instrument without permanent scarring, but that 160 degrees F. will cause permanent opacity of more or less degree.

The thermophore itself consists of an electrical heating coil, in the center of which is placed a thermometer and a receptacle for various sized nickel-plated brass conductors for application to the tissue. The temperature is controlled and kept constant by an adjustable thermostat. Thus when the instrument is set at 140 degrees F. it remains within one degree of this temperature indefinitely by automatic control. The conductors have different sized and shaped tips for application to the various lesions to be treated.

TREATMENT OF PNEUMOCOCCUS ULCER

First we shall discuss pneumococcus ulcer for the treatment of which the instrument was primarily designed. Where I have used the thermophore in these cases the results have been excellent. It is necessary to apply it as soon as the ulcer is discovered and in the manner described below.

The eye is cocaineized by instillation of 4-5 drops of 5 per cent cocaine at 3-5 minute intervals. I always use either a subconjunctival injection of 1-3 min. of 5 per cent cocaine or one of B. and W. 1/20 gr. cocaine ophthalmic discs following this, five minutes before the application of the thermophore. Then an applicator is selected which will not only cover the ulcer, but will overlap the gray infiltration surrounding the ulcer into healthy tissue. It can be demonstrated histologically that pneumococci have penetrated in advance of the zone of gray infiltration. If the ulcer is of such size or shape that one conductor will not cover the entire area, successive applications of different sized conductors are made

at the same sitting to cover the entire area. The conductor is brought into actual contact with the cornea and only enough pressure exerted to slightly dimple it. I have proved by experimentation on my own skin that the pressure exerted on the applicator has a marked effect on the amount of heat absorbed and the depth to which it penetrates. If there is any advancing edge on the ulcer on the next day it is a sign that an area was missed by the applicator and another application to this active area must be made. One uses the temperature of 160 degrees F. for one minute at each application to be sure to be above the thermal death point of pneumococci. The application must also be made continuously for one minute to get the full effect.

In his article on "Thermal Death Points" in "Contributions to Ophthalmic Science"—Doctor Jackson's birthday volume—Shahan goes into detail as to the temperatures which normal and tumor tissues will stand as applied by the thermophore.

The corneal epithelium is the most easily destroyed at 130 degrees F., but as this readily regenerates we need not worry about its destruction. Permanent damage to the corneal stroma and Bowman's membrane is not done until the temperature goes over 150 degrees F., so that with temperatures under this point we get no permanent scar. The sclera is very resistant, but I have observed complete atrophy of retina and choroid with no permanent damage to overlying sclera with 160 degrees F. for 3-5 minutes applied to the sclera in rabbits. As Shahan points out that the thermal death point of most tumor cells is under 145 degrees F., we may easily destroy small tumors without permanent damage to normal tissues.

Now as to actual case reports and clinical experiences. In all these cases the thermophore was applied with local cocaine instillation anesthesia followed by subconjunctival injection or a 1/20 gr. B. and W. cocaine tabloid.

CASE REPORTS

I have had four patients with dendritic ulcer treated with the thermophore.

The first was seen in February, 1924. After using everything from silver nitrate to absolute alcohol with refusal to heal for a month the thermophore was applied at 140 degrees F. for one minute to the entire area. Three days later there was no staining with fluorescein. A month later two small areas broke down, but healed in less than a week and have remained healed to date, as the patient was recently seen.

The second was first seen in October, 1925. The ulcer progressed for eight days under conservative treatment. The thermophore was then applied at 135 degrees F. for one minute.

The ulcer had healed on the following day. This ulcer was over the center of the pupil and that was the reason for the temperature of only 135 degrees F. In November there was a marked central opacity of the cornea. Dionin was prescribed and in January, 1926, the vision was

* Read before the Eye, Ear, Nose, and Throat Section, California Medical Association, at its Fifty-Sixth Annual Session, April 25-28, 1927.

20/20 with correction and only a faint nebula visible. The ulcer never recurred.

The third patient was seen in consultation with Doctor Jesberg in December, 1926. She had had dendritic ulcer on and off for ten months. The whole lower half of the cornea was involved. The entire area was covered, using 140 degrees F. for one minute. The pupillary area which was uninvolved was not touched. This patient experienced severe pain for five days following the treatment, which had to be kept under control by morphin and hyoscin. In all the others the pain was controlled by aspirin or allonal. There was only a slight stain on the day following treatment and no staining on the fifth day. On January 14, 1927, there was much clearing of the cornea and no further trouble.

The fourth was treated in January, 1927, the application made at 136 degrees F. for one minute. Complete healing followed in three days and the cornea is now clearing with dionin. From these experiences it would seem that application from 136 degrees to 140 degrees F., depending upon the severity of the ulcer, will cause healing in from one to five days and that the after treatment with dionin leaves very little scar. The scar persists from the ulcer and not the area touched with the thermophore.

Another patient with a progressive non-infected ulcer near the limbus was treated by the usual methods for ten days without healing. The thermophore was used for one minute at 140 degrees F. followed by healing in three days. The ulcer has not recurred. Thus one use of the thermophore is for the stimulation of healing of non-infected ulcers of the cornea.

My personal experience with corneal new growths has been limited to three cases. These have been epithelial growths, apparently non-malignant, entering from the limbus. One growth was covered with a waxy film and had been curetted with recurrence. I saw a similar growth in consultation with Doctor Irvine upon which we used the thermophore. In all of these corneal growths I used 150 degrees F. for one minute. In the first few days following the thermophore application there was hemorrhage into the growth and swelling. Then it gradually began to absorb and disappeared entirely, leaving practically no scar.

One large dermoid of the cornea was treated using repeated applications at 160 degrees F. for one minute, but there was so much fibrous tissue present that the treatment was ineffective.

A conjunctival nevus was removed using 150 degrees F. for one minute. The absorption took a period of almost two months. I saw one in the office of Doctor Ewing where a second application was necessary to cause complete disappearance of the growth.

At the General Hospital I have shown a patient where a granuloma extending from the plica up around under the upper fornix and around into the lower fornix was absorbed completely with

150 degrees F. applied over its entire extent for one minute. This was done in three sittings.

Non-pigmented nevi of the lids, especially those near the margin which one does not wish to excise may be destroyed through repeated applications at 150 degrees F. If the patient is very sensitive one may infiltrate with novocain. In experimental work I have removed small pigmented nevi and hemangiomas with 150 degrees F. for one minute.

Large, horny warts must have the horny layer removed with nitric acid and the pointed conductor plunged into their center at 160 degrees F. for one minute. My results with xanthomas have not been successful, as the process seems much more difficult than the simple excision and suturing of the skin. I have not used the instrument in trachomatous pannus, although Luedde of St. Louis reports a favorable result. Twice I have used the instrument on very small basal cell epitheliomas, less than five mm. in size, in the orbital region with complete disappearance and healing of the ulcer using 150 degrees F. for one minute.

In experimenting on myself on the skin of the forearm and allowing the instrument to rest with its full weight using a 4 mm. contact I found the following results: 135 degrees F. for one minute caused a temporary erythema; 140 degrees F. for one minute an erythema lasting several days, but with no permanent destructive effect; 145 degrees F. for one minute caused destruction of the skin with scar tissue replacement, but with an almost unnoticeable scar after a few months; 150 degrees F. for one minute left a quite noticeable scar. As the pressure used here was much greater than that ordinarily used and the skin is much thinner on the forearm, it is safe to conclude that under usual circumstances temperatures up to 150 degrees F. may be used on skin tumors without fear of a noticeable permanent scar.

CONCLUSIONS

To sum up my experiences I think we may say that the indications for thermophore therapy are:

1. Infected progressive ulcers of the cornea which require 160 degrees F. for one minute.
2. Non-infected progressive or indolent ulcers of the cornea requiring 135 degrees to 140 degrees F. for one minute, the lower temperature to be used if the ulcer is in the pupillary area. If this does not cause healing a second application with a higher temperature may be made.
3. Any tumors, malignant or non-malignant, of cornea or conjunctiva which require 150 degrees F. for one minute, to be repeated if entire mass does not absorb after the reaction is complete.
4. Non-malignant tumors of lids and skin surrounding eye where the mass is not so great that conducted heat will not penetrate. These require 150 degrees F. for one minute.

The precautions to be observed if one wishes success are complete anesthesia, an applicator large enough to extend well out into normal

tissue, and pressure firm enough to dimple the cornea or dent the skin.

2007 Wilshire Boulevard.

DISCUSSION

FRANK H. ROBIN, M.D. (490 Post Street, San Francisco)—During the last twenty-five years many useful instruments have been added to the oculist's equipment. The most useful for therapeutic purposes is Shahan's thermophore. Doctor Weymann has fully covered the indications and the method of applying the thermophore.

There are a few points in applying the instrument which may be helpful in obtaining the best results. It is not necessary to emphasize the importance of proper anesthesia. The thermophore is best applied while the patient is in a supine position on an examining table or couch. It can also be applied while the patient is in bed. Having brought the instrument to the desired temperature, and having selected a conductor most suitable for the purpose, the thermophore is applied the same as one would a tonometer. If the patient cooperates and the lesion under treatment is small the eyelids may be separated with the fingers when applying the instrument, otherwise an eye speculum is indicated. The patient fixes with his normal eye at a point on the ceiling in such a way that the surface to be treated on the affected eye is directly upward. The surgeon must keep his eye constantly on the area under treatment and see that the thermophore is properly applied. It is well to have a nurse or an assistant to watch the time and notify the surgeon when the required time has elapsed—usually one minute.

My experiences in treatment of corneal ulcers with the thermophore are similar to those of Doctor Weymann. There is nothing so distressing to the patient and such a source of anxiety to the surgeon as a corneal ulcer that refuses to clear up in spite of all topical applications of drugs. Here the thermophore is most useful. It will not only shorten the period of treatment but will permit the patient to return to his work sooner. The tendency is to delay the application of the thermophore. Any pneumococcus ulcer or any large ulcer should have the thermophore applied at once, also any corneal ulcer that does not show an improvement after a few days of routine treatment. I believe that some of the cases of corneal ulcers reported which necessitated conjunctivoplasty might have been cured by the application of the thermophore without resorting to an operation. It is true that such intractable ulcers are not very common; but even if one such case occurs during a year's practice which can be helped with the thermophore the inclusion of this instrument in the equipment of every oculist is recommended.

My experience with the application of the thermophore to corneal and other growths has been limited. The tendency is to remove such growths surgically. However, there are many cases in which this instrument can and should be given a trial before resorting to surgical or other means.

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A. RAY IRVINE, M.D. (709 Westlake Professional Building, Los Angeles)—After five or six years' experience with the use of the Shahan thermophore, I agree with Doctor Weymann that it is one of the most valuable adjunct therapeutic agents in our armamentarium. For indolent corneal ulcers and also acute cases that tend to progress rapidly, the thermophore, applied with a point sufficiently large to cover the ulcer and immediately adjacent infiltrated area, has given me better results than any other means which I have tried.

The pressure used in applying the point is of as great importance as the time used for the application. A pressure sufficient to flatten the corneal area involved will insure the most efficient penetration of heat, and the time of one minute at 140 degrees F. for corneal lesions will not destroy the normal tissue.

For papillomata of the lids it is necessary to first remove the horny layer before applying the instru-

ment. We may here use a few more degrees of heat.

In a case of recurrent wax-like epithelial growth extending from the limbus and covering one-third of the cornea and into which were a number of angry vessels, I was able to completely remove, leaving transparent cornea. After eight months there has been no recurrence. Three applications at 140 degrees for one minute at week intervals were necessary, parts of the growth not having been covered at the first application.

In a case of very large papilloma of the upper lid, extending from the upper border of the tarsal plate to the margin of the lid, one in which surgical removal would have produced a considerable deformity of the lid, I was able entirely to remove in three or four applications, without deformity.

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OTTO BARKAN, M.D. (490 Post Street, San Francisco)—I take pleasure in complimenting Doctor Weymann upon calling the attention of the western specialists to the Shahan thermophore. His excellent exposition of the subject seemed to me to fill a definite gap. No one that reads his interesting paper can fail to be impressed by the excellence and the manifold uses of the instrument.

Our experience in its application on several hundred cases has been most satisfactory. We agree that it constitutes a great step in advance in ophthalmological therapy. Not only can such conditions as herpes corneae, recurrent erosions, various types of chronic, recurring ulcers be cured within a few days—which formerly required several weeks or even months to relieve—and the patient thereby be saved a tedious convalescence but, in many of these conditions, the very rapidity of the cure, as well as the minimum destruction of tissue entailed, saves the patient permanent loss of vision.

DOCTOR WEYMAN (closing)—Lest we seem too optimistic I may say that ulcers healed by means of the thermophore may break down if attention is not paid to clearing up foci of infection and other etiological factors. Also one must select his cases with a knowledge of the underlying physiological principles of thermophore therapy and not use it where stimulation will do harm instead of good. But we may say that of all the means of therapy at our command for these conditions the thermophore, when properly used, gives the highest percentage of successful results.

NON-SPECIFIC PROTEIN THERAPY IN DERMATOLOGY*

By HIRAM E. MILLER, M.D.

AND

NORMAN N. EPSTEIN, M.D.
San Francisco

DISCUSSION by Ernest Dwight Chipman, M.D., San Francisco; George D. Culver, M.D., San Francisco; George F. Koetter, M.D., Los Angeles; Kendal Frost, M.D., Los Angeles.

THE remarkable disappearance or improvement in certain chronic diseases following an attack of an intercurrent and unrelated infection has been a rather common and puzzling clinical observation. Instances of this nature are within the experience of most practitioners. The apparent cure or arrest of a syphilitic infection following an exfoliative dermatitis due to arsphenamin therapy is a frequent finding. The favorable influence of malaria or some other fever producing infection upon general paresis of the insane is well established. One of us has seen a striking improvement in a patient almost moribund

* From the Department of Dermatology and Syphilology, University of California Medical School, San Francisco.

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from Hodgkin's disease after a very severe attack of herpes zoster of the thoracic region. A resistant lupus erythematosus has been seen to disappear during the course of typhoid fever. Malignant tumors, Hodgkin's disease, and lepra nodules have been known to recede after an attack of erysipelas. From a study of these clinical experiences, and in an attempt to reproduce therapeutically similar changes in the body, there has been developed the modern practice of non-specific protein therapy.

NON-SPECIFIC PROTEIN THERAPY

Non-specific protein therapy consists in the injection of some foreign protein into the human body either intravenously, intramuscularly, or subcutaneously. The injection is followed by a reaction which may be mild or very severe, the patient presenting a clinical picture of shock. The degree of reaction will depend upon the protein used, the amount injected, the mode of administration, the age of the patient, and the disease from which he may be suffering. This non-specific reaction is fundamentally the same in all instances irrespective of the agent used to produce it. In the main, it consists in the production of a chill followed by a rise in temperature which usually returns to normal within twenty-four hours. There is an initial leukopenia followed by a leukocytosis; the serum and lymph enzymes are increased; and the patient may complain of nausea, vomiting, headache, and general malaise. The degree of reaction necessary to produce therapeutic results is not known, but it would seem, in most instances, that a mild reaction is as efficacious as a severe one.

Obviously a severe reaction would do definite harm to an individual with an active tuberculosis or in a state of debility.

Peterson, in his monograph upon this subject, presents a chart showing the great variety of agents that may produce the non-specific reaction. Some of these were formerly employed empirically in therapeutics. He mentions counterirritants, normal and immune sera, milk, casein, gelatin and nucleoproteins, split protein products, enzymes, tissue extracts, vaccines, bacterial extracts, colloidal metals, iodides, yeasts, heliotherapy, x-ray, radium, and many others. The fact that x-ray, radium, and heliotherapy may act in this way is of particular interest.

It is beyond the scope of this paper to go into the mechanism of the non-specific reaction or to attempt an explanation of the therapeutic effects obtained by this form of therapy. Suffice it to say that by the artificial production of this reaction, the body is able successfully to take care of or detoxicate certain toxic products produced either as a result of broken-down tissue proteins or by the disintegration of bacterial bodies. Because of its non-specificity, this form of therapy has been employed in a great variety of clinical conditions.

METHODS FOR PRODUCING THE NON-SPECIFIC PROTEIN REACTION

We have used four methods of producing the non-specific protein reaction in various derma-

tological conditions. (1) lact albumen has been given intramuscularly and intradermally, (2) typhoid vaccine intravenously, (3) autoserum, and (4) vaccine intramuscularly.

The most practical method for clinic and office practice has been the use of lact albumen manufactured under the trade name of "Aolan." It is a milky fluid which is injected intramuscularly, preferably into the gluteus muscles, in 10 cc. doses every five or seven days. It produces little pain at the site of the injection. The reaction usually consists in a moderate rise in temperature, occasionally chilly sensations, slight malaise, and headache. It comes on from six to eight hours after the injection and persists for a few hours. Many patients do not notice any reaction, while others have a moderate discomfort. The most severe reaction is usually seen after the initial injection. It is quite safe to employ this method in ambulatory patients. While it is probably advisable to use smaller doses in children, we have had better therapeutic results where a full dose of 10 cc. was used. No evidence of anaphylaxis was noted in any of the patients.

"Aolan" may be employed intradermally in doses of 0.1 to 0.2 cc., two or three wheals being produced upon the flexor surface of the forearm twice weekly. We have not noticed any beneficial therapeutic effects from this method of treatment.

Probably the best method of producing the non-specific reaction in hospital patients is by means of a typhoid, paratyphoid alpha and beta vaccine injected intravenously. Seventy-five million organisms, diluted in a few cc. of normal saline, injected intravenously, are sufficient to produce a moderate reaction. This consists of a chill lasting from 15 to 30 minutes, with the temperature rising to 39 degrees C. or more, and the patient feeling quite sick for a few hours. The reaction usually comes on within a few moments after the injection and persists for ten to twelve hours. This therapy should be repeated every five or seven days for 3-5 injections, increasing the dose by twenty-five million organisms.

The third method has been the use of autoserum. From 10 to 20 cc. of the patient's blood is withdrawn from a vein in the arm and immediately injected into the patient's buttocks. This must be executed rapidly in order to prevent clotting in the syringe. The reaction produced by this method is usually slight, and may be unnoticed except for moderate soreness at the site of injection.

A staphylococcus and streptococcus vaccine, both autogenous and stock, has been used in an attempt to obtain a specific reaction against the offending organism. The stock vaccine was found to be of as much value as the autogenous one. This is probably explained by the fact that the basis of most vaccine therapy is a non-specific protein reaction.

DERMATOLOGICAL CONDITIONS IN WHICH NON-SPECIFIC PROTEIN THERAPY WAS USED

1. *Kerionic Ringworm* — Non-specific protein therapy probably finds its greatest usefulness in dermatology in the treatment of kerionic ring-

worm of the scalp and beard. In this type of tinea infection the lesions are quite deep, are usually discrete, and kerionic formation is a prominent feature. A series of ten cases of kerionic ringworm of the scalp were treated, with gratifying therapeutic results. All of these patients were completely cured after four intramuscular injections given at five to seven-day intervals. The process subsided to a considerable extent after the first injection, and after the third no organisms could be demonstrated in the lesions. While it is true that various local applications were used in these cases, the rapid response to therapy could only be attributed to the foreign protein reaction.

A patient with a large-spored tinea infection of the beard and presenting boggy kerionic masses over the face and neck cleared up rapidly after three injections respectively of seventy-five, one hundred, and one hundred and twenty-five million organisms of a typhoid, paratyphoid alpha and beta vaccine given intravenously at five-day intervals.

This form of therapy does not seem to have any effect upon the superficial, non-pustular, small-spored types of tinea.

2. *Sycosis Vulgaris*—This chronic pyogenic infection of the beard seems as resistant to foreign protein therapy as it does to other forms of treatment. In some cases the results have been encouraging, while in others they have been most disappointing. Although we have not had any complete cures of this condition by the use of non-specific therapy, certain individuals have been definitely benefited by the treatment. Intramuscular injections of milk or "Aolan" were as effective as large doses of the typhoid, paratyphoid alpha and beta vaccine given intravenously.

3. *Pyodermia*—Chronic pyogenic infections of the glabrous surface of the skin are frequently benefited by the injection of a foreign protein. A chronic pyogenic ulceration of the neck improved remarkably after one injection of "Aolan" intramuscularly. The pyogenic element in an eczema or dermatitis may be controlled by foreign protein therapy.

4. *Acne Vulgaris*—In this disease we have used the intradermal method of injection, using "Aolan" in 0.1 cc. doses. There were apparently no beneficial results obtained. In the extensive pustular type of acne, intramuscular "Aolan" in 10 cc. doses is of value.

Autogenous and stock vaccines, likewise, have been of little value, in our experience, in the treatment of acne vulgaris.

5. *Furunculosis*—There is some benefit obtained by the use of autogenous and stock vaccine in patients with persistent and recurrent furunculosis. It is of little value in the treatment of acute and solitary lesions. This is the only type of foreign protein therapy that we have used in this disease.

6. *Eczema and Seborrheic Dermatitis*—These cases were not particularly benefited by non-specific therapy except where the pyogenic element was pronounced. It is interesting to note

that one patient with extensive seborrheic dermatitis became definitely worse after each injection of "Aolan."

7. *Syphilis*—Certain syphilitic lesions, resistant to specific medication, are frequently cleared up quickly with the aid of foreign protein injections. Interstitial keratitis clears more rapidly under intramuscular milk therapy than with anti-syphilitic drugs. Syphilitic iritis will involute after intravenous typhoid vaccine injections. A case of malignant syphilis, presented by Doctor Ormsby at the 1926 annual Chicago Dermatological Society meeting, resisted all specific medication and progressed to the point where the upper lip and the entire nose were destroyed. The lesion was finally controlled by foreign protein therapy. The malarial treatment for general paresis of the insane has proved of definite value.

8. *Lupus Erythematosus*—Cases of lupus erythematosus are frequently benefited by non-specific reactions of various kinds. A case of lupus erythematosus disseminata cleared almost completely after a series of intravenous injections of typhoid vaccine. The improvement noted after the use of colloidal gold may be considered as a result of a non-specific reaction. Lupus erythematosus has cleared under injections of phylacogen. The striking improvement in some of these cases after tonsillectomy is probably the result of absorption of broken-down tissue proteins at the site of the operation. Lupus erythematosus has cleared during the course of typhoid fever.

The improvement seen in lupus erythematosus is not permanent, as a rule, but foreign protein therapy is a definite aid in the treatment of the disease.

9. *Dermatitis Herpetiformis*—Autoserum therapy has been used in the treatment of this disease. The reaction obtained is slight, but the treatment is occasionally of value in clearing up severe exacerbations of the disease.

10. *Chronic Urticaria*—We have used autoserum and "Aolan" in the treatment of this disease. Over a period of several years we have found that autoserum intragluteally will often cure the disease when all other methods have failed. "Aolan" has not been as efficient in our hands.

SUMMARY

Of the four methods of non-specific protein therapy with which we are familiar the use of "Aolan" or milk intramuscularly is the most practical for clinic and office practice. This method is of definite value in the treatment of kerionic ringworm of the scalp, certain cases of sycosis vulgaris and chronic pyodermia.

The use of typhoid, paratyphoid alpha and beta vaccine intravenously is best suited for hospital patients because of the severe reaction obtained. This method is of particular use in the treatment of kerionic ringworm of the beard, resistant syphilitic lesions, and lupus erythematosus.

Autoserum therapy finds its best application in the treatment of severe attacks of dermatitis herpetiformis and chronic urticaria.

The use of autogenous or stock staphylococcus

and streptococcus vaccines do not seem as effective in most instances as the milk injections.

We have briefly reviewed our experience with non-specific protein therapy.

CONCLUSIONS

1. Non-specific protein therapy is curative in kerion ringworm of the beard and scalp.

2. Certain resistant syphilitic lesions respond to non-specific protein therapy after the so-called specific drugs have failed to influence them.

3. Nonspecific foreign protein therapy, while not necessarily curative in many chronic dermatoses, has a definite place in the treatment of them.

384 Post Street.

DISCUSSION

ERNEST DWIGHT CHIPMAN, M. D. (350 Post Street, San Francisco)—The paper by Miller and Epstein is deserving of much praise because it is a definite contribution that is calculated to stimulate dermatologic research in the field in which it is most needed.

There are numerous dermatoses the cause of which we have never discovered. Some of these we handle, after a fashion, empirically. There are others in which we may or may not know the cause that defy our best therapeutic efforts.

While there may be details in which some of us may differ, it seems to me that the paper should be considered in its entirety as representing a sincere effort to make progress where progress is required. The merit of the paper is as great in what it suggests as what it states; it even holds out hope against that bugbear of dermatologists, lupus erythematosus. For all its conservatism and modesty, the paper is most stimulating.

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GEORGE D. CULVER, M. D. (323 Geary Street, San Francisco)—In discussing "Non-Specific Protein Therapy in Dermatology," as presented by Doctor Miller and Doctor Epstein, I wish to express my appreciation of the careful manner in which they have prepared their subject. So much depends upon therapy in dermatology that whatever proven additional aid can be given to this part of the subject becomes of untold value.

Many of us have noted in our experience that kerion ringworm, whether of the beard or scalp, that may have the most formidable appearance may be the most amenable to treatment. I recall a number of instances, one of an adult with kerion of the nape of the neck extending into the scalp that made a spectacular recovery. This recovery might well be explained by the fact that with a marked added pyogenic infection there was a rapid absorption of non-specific proteins.

The assistance given one in treating that most obstinate syphilitic manifestation, interstitial keratitis, is a great boon to the syphilologist.

Doctor Miller and Doctor Epstein deserve our commendation.

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GEORGE F. KOETTER, M. D. (1136 West Street, Los Angeles)—Non-specific protein therapy is of definite value in the treatment of certain dermatoses.

Psoriasis, lupus erythematosus, and other recalcitrant dermatosis of unknown etiology resist our best therapeutic measures.

I have observed remarkable, apparently curative results in the treatment of dermatitis herpetiformis by the intravenous injection of autoserum or peptone.

Miller and Epstein deserve praise for their concise, stimulating presentation of this subject.

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KENDAL FROST, M. D. (523 West Sixth Street, Los Angeles)—Doctor Miller's and Doctor Epstein's resumé of the situation is indeed noteworthy and deserves careful study.

I might add that many cases of psoriasis respond,

at least temporarily, to non-specific protein therapy. I have used it chiefly in the form of autogenous blood or autoserum. Many cases which have resisted local applications of all sorts will respond readily after a series of treatments of this sort.

We can well do with more work of the painstaking and modest type of Miller and Epstein.

POLIOMYELITIS INVOLVING THE URINARY TRACT

By HENRY A. R. KREUTZMANN, M. D.
San Francisco

THAT lesions of the spinal cord frequently involve the bladder, and may do so quite early in the course of the disease, in fact sometimes before any pathology is noted in the central nervous system, is becoming more and more evident.

Nitze was the first to call attention to the changes in the bladder which occur in cerebrospinal lues. The cystoscopic picture in this disease is a characteristic one, and the term "tabetic bladder" is now of common usage.

Bladder changes have been observed in many other diseases involving the central nervous system, and in these cases the term "spinal-cord bladder" is used.

BLADDER CHANGES IN SPINAL-CORD DISEASES

The various cord conditions in which bladder changes have been noted and reported are: tabes dorsalis; postapoplectic conditions; gumma of spinal cord; tumors of spinal cord; psammoma of the dura mater; fractures of the spine; injuries of the cord; hematomyelia; syringomyelia; spina bifida; pernicious anemia.

The symptoms in spinal cord bladders form a distinct group which are quite typical in most cases. In the early stages there is an irritation of the nerves and a spasm of the vesical sphincters so that there may be difficulty of urination or even acute retention. As the nerves become paralyzed, a different picture presents itself. In the later stages there is hesitancy in urination and the stream lacks force. At times the patient complains of nocturnal enuresis.

If the bladder is free of infection the patient's only complaint may be great straining on voiding and weakness of the urinary stream. However, if infection is present we have the added symptoms of frequency, urgency, dysuria, and nocturia.

The terminal stage, associated with entire destruction of the spinal cord may produce either paralysis with automatic emptying of the bladder or complete incontinence.

Examination of these patients reveals certain findings common to most of them. The external genitalia are flabby and show marked loss of tone. There is considerable straining on the part of the patient before the urine begins to flow. The stream is of poor force, with dribbling at the end. Catheterization causes little or no discomfort, due to diminished sensation. On passing a soft rubber catheter some obstruction is felt at the bulbomembranous junction as a result of the constant spasm of the external sphincter. When the eye of the instrument enters the posterior

urethra urine begins to flow. The bladder contains a varying amount of residual. While the urine is being withdrawn through the catheter the stream is slow and lacks force, even when augmented by straining on the part of the patient. The urine may be clear, but in most cases pus and bacteria are present.

On cystoscopy no difficulty is encountered in passing the instrument. The bladder walls at the base, laterally and at the dome, show trabeculations. They are in most instances very fine, due to atrophy of the bladder musculature. At times they may be coarse, due to hypertrophy of those muscle fibers which have escaped being involved in the paralysis.

The trigone is not thickened as is the case in bladder obstruction, but is thinned and at both ends divides into trabeculae. The internal sphincter is relaxed, so that the cystoscope can be pulled into the posterior urethra without tilting it. The posterior urethra is ballooned, the walls are smooth and atonic and can be examined with an anterior scope. The mass of tissue composing the internal sphincter is seen rising like a wall in front of the supramontaine region, due to the relaxation of the muscles in the posterior urethra.

The cystogram shows a funneling in the region of the internal sphincter as a result of the filling of the posterior urethra from the bladder.

For the past eight months, we have had under our care a patient whose findings are similar to those just described and in whom none of the spinal cord conditions previously mentioned were found.

URINARY CONDITIONS AND POLIOMYELITIS

It is certain that the urinary changes in our case were due to poliomyelitis, and we believe that this disease should be considered as one of the possible causes of spinal-cord bladders.

The textbooks make little mention of bladder involvement in infantile paralysis. Strumpell¹ states that "micturition is sometimes a little dis-

turbed at the beginning of the disease, but in most cases this disturbance completely disappears later." Osler² merely states that "the bladder may be involved." That there may be some effect on the urinary organs in the early acute stage has been noted by a number of clinicians. Schaller³ cites a case of acute poliomyelitis in a patient twenty-one years of age in whom the bladder extended to the umbilicus and necessitated catheterization. In another instance the patient had to be catheterized twice because of acute retention. Peabody⁴ in a summary of cases treated in the Boston epidemic of 1920 states that one patient was unable to void for two days. Bugbee⁵ more recently reported the case of a boy one year old suffering with a distended bladder due to acute infantile paralysis. He states that this is the first case to be mentioned where bladder paralysis was the initial symptom.

Braasch⁶ states that involvement of the centers of urinary control by poliomyelitis is not common. Occasionally, however, with extensive lesions, the motor fibers are affected, leaving an atonic bladder.

All the references which we have been able to find describe the bladder involvement as occurring in the acute stage of poliomyelitis. With one exception there has been no case history reported where the urinary tract was involved in the later stages of the disease.

Camphora⁷ reported the case of a boy aged fourteen who was suffering from complete urinary incontinence for the last seven years. At the beginning of his illness gastro-intestinal symptoms kept the patient in bed nine months. Neither the boy nor his parents could remember whether or not there had been any convulsions or paralysis of muscles pointing to a participation of the spinal cord in the pathological process. The author concluded that as the patient had no symptoms of tabes, it may be presumed that the affection was poliomyelitis. This is the only report found suggestive of bladder involvement years after the onset of the disease.

REPORT OF CASE

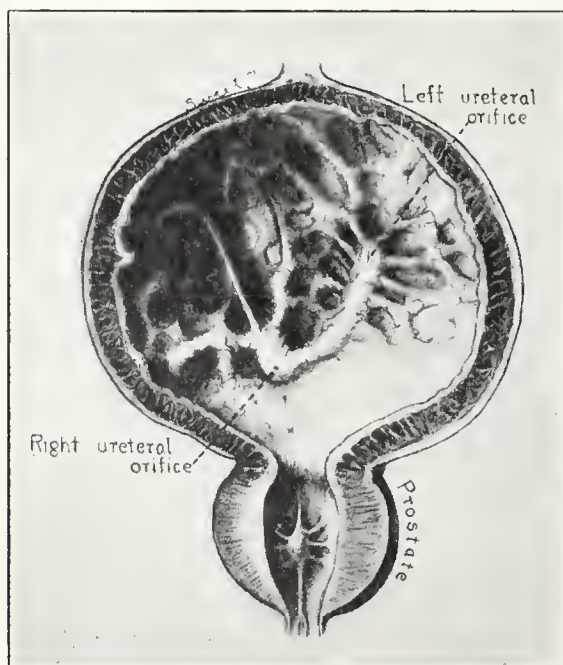
The case history of the patient to whom we have referred was obtained by questioning his mother, by reviewing the original notes of the late Dr. H. S. Sherman, kindly offered us by Doctor McChesney, and by examining the records at the Children's Hospital.

The history is as follows:

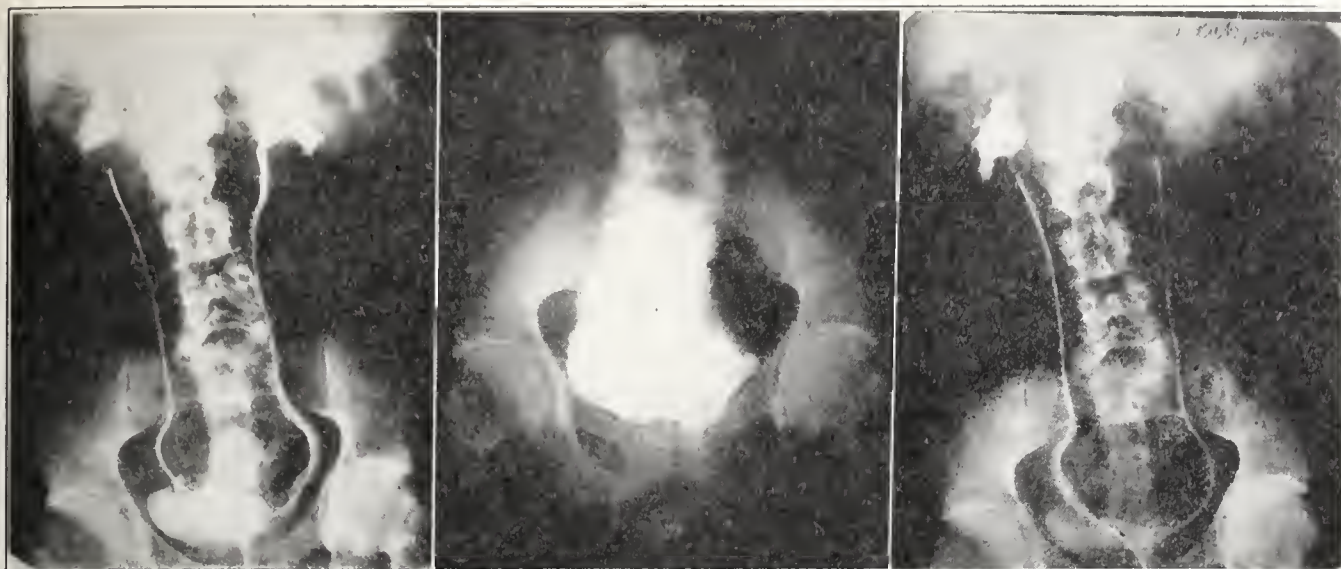
H. H., male, aged 31. Family history irrelevant. With the exception of the present illness, the patient has had only the usual diseases of childhood.

He was perfectly well until his second year, when he began to have pains upon stepping down suddenly. At this time he was irritable, did not sleep well, and had continual twitching in both legs and thighs, most marked on the right side. When 3 years old the twitchings became less marked, the pain disappeared and the general condition improved. His gait, however, was very poor and so at the age of 5 he was brought to Doctor Sherman, who stated at this time that the patient's condition was due to poliomyelitis.

A tendon transplant was performed when the patient was 6 years old. The urinalysis at this time was



Drawing showing the interior of the bladder with multiple cellules and distorted trigone. Note also the dilated posterior urethra.



Left pyelogram—hydronephrosis

Cystogram showing multiple cellules and funneling of the posterior urethra.

Right pyelogram showing moderate hydronephrosis with obliteration of secondary calices.

normal. The bedside notes give no indication of any bladder disturbance being present.

The next year the mother noticed the boy to be suffering with frequency, urgency, and bed wetting. He was brought to my father, who prescribed some powders.

A second tendon operation was performed at eight years. The hospital urinalysis at this time makes no mention of pus cells, but states that a great amount of detritus was present. The patient's urinary symptoms began when he was 7 years old, and have continued with little variation up to the present time. He now voids on an average of once every hour, has great urgency, hesitancy, and the stream is of poor force. Nocturnal enuresis occurs about two or three times a week. The urine has a foul odor. There is no dysuria or hematuria; no lumbar pains or ureteral colic. The sexual powers are greatly diminished, erections occurring only infrequently.

Physical examination shows partial paralysis of the muscles of both legs, associated with constant fibrillary twitching. The scrotum is pendulous and a left varicocele is present. The rectal sphincter is relaxed and there are some external hemorrhoids. The prostate is of normal size and consistency. The secretion shows nothing pathological. A voided urine specimen is alkaline; S. G., 1026; no sugar, heavy cloud of albumin. Microscopic examination shows no red blood cells, but a large number of pus cells. The bladder contains 265 cc. of residual urine. Cystoscopy shows the bladder floor, walls and dome to be covered with coarse trabeculations in the interstices of which are many cellules of varying depth. The trigone is greatly distorted and twisted to the left so that the right ureteral orifice is situated near the midline, while the left is far toward the left wall. The internal sphincter is greatly relaxed. No difficulty is experienced in moving the scope into the posterior urethra. The walls here are dilated, there are fine striations about the verumontane, and the internal sphincter is seen rising up like a dam. The bladder urine showed *B. coli*. Number six ureteral catheters were inserted to each kidney pelvis without difficulty, notwithstanding the abnormal position of the ureters. Urine from both kidneys showed numerous red blood cells and an occasional pus cell. Cultures from both sides were negative. A half-hour phthalein test showed 14.3 per cent of the dye coming from the right kidney, while 21.8 per cent was eliminated on the left side.

Pyelograms showed moderate dilatation of both kidney pelves with beginning obliteration of the major calices, especially on the right side. Cystogram showed a huge irregular bladder outline with a filling of the posterior urethra.

COMMENT

From the history it is quite certain that the urinary tract involvement began at the same time as did that of the spinal cord. It is also evident that the same agent which produced a paralysis of the nerves going to the leg muscles had also caused a paralysis of the sympathetic and parasympathetic nerves which supply the bladder.

Whether or not the hydronephrosis is part of the same process, we do not know. It is not due to back pressure from the residual urine, as the kidney cultures were negative and the cystogram showed no opaque solution in the ureters or in the renal pelves. This is in keeping with Plaggemeyer,⁸ who found that in cases of gunshot wounds of the spinal cord there was no back pressure from the residual urine.

The dilatation may be due either to paralysis of the nerves supplying the kidneys or to the abnormal position of the ureters as they enter the bladder. We believe the latter to be the most likely cause.

Plaggemeyer⁸ in all his cases of bladder paralysis due to spinal-cord injury found no vesical stones notwithstanding the constant residuals, the majority of which were infected. It is interesting to note that in the case reported here no vesical calculus was observed although the patient has had infected residual urine for at least twenty-four years.

The symptom of nocturnal enuresis should be considered of great significance by urologists. It is possible that in patients in whom this occurs there may be some early changes in the nervous system which can be recognized by the cystoscope. If, in these cases of bed wetting, the bladder walls show fine trabeculations and perhaps beginning relaxation of the internal sphincter a thorough neurological examination should be made.

The treatment of spinal cord bladders depends entirely upon the pathology found in the central nervous system. The bladder treatment of patients suffering with traumatic injury to the cord

is entirely different from that where the cord condition is due to some disease.

As a result of the sudden complete bladder paralysis produced by an injured cord, infection occurs easily and for that reason catheterization should not be performed. There may be acute distention for a few days, causing great distress to the patient, but in time the automatic bladder will develop: the patient will be quite comfortable and no infection of the urinary tract will result.

Since it is the ascending urinary infection which ultimately proves fatal, no instrumentation whatsoever should be performed upon a non-infected bladder.

On the other hand, if the disease in the cord is amenable to treatment, we should regard the bladder condition as a secondary one which will improve with the proper treatment after the primary lesion has been removed. In such cases the aim should be to keep the bladder clean and to retain its tone. If there is infection present the patient should be catheterized several times a week, the bladder should be washed with some antiseptic solution, and then some silver salt should be instilled. Urotropin given at intervals is of benefit in cases having large amounts of residual urine.

Muscle tone can be increased by instructing the patient to empty his bladder as completely as possible and to start and stop the stream at frequent intervals while voiding in order to strengthen those muscles which are not paralyzed.

This treatment has been of benefit in our patient. The nocturia and bed wetting have stopped entirely and the bladder urine shows very little pus. The residual is not much less, but urination is performed at the same hour every day, and in this manner no discomfort is experienced.

CONCLUSIONS

From a study of the case presented here and a review of the literature we have reached these conclusions:

1. In the early stages of poliomyelitis acute retention is sometimes a complicating factor.
2. Gross changes in the urinary tract may occur in chronic poliomyelitis which will give rise to the typical findings characteristic of spinal-cord bladders.

1195 Bush Street.

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OCULAR MELANOSIS—ITS SURGICAL AND RADIUM ASPECTS*

CASE REPORT

By P. OBARRIO, M. D.

AND

LOUIS C. DEANE, M. D.

San Francisco

MRS. H——, a seamstress by occupation, 56 years old when she first consulted us, February 1, 1923.

History—She tells us that since about the age of 24 she had noticed a black spot on the white of her right eye. This spot had the peculiarity that it would occasionally disappear only to reappear again possibly a little larger in size. These changes would take place without any treatment whatever.

Her family history, personal history, blood examinations, urine and all the other antecedents were negative. She was a well nourished, healthy person.

Condition When First Seen—On the supero-exterior quadrant of the right eye and encroaching on the corneal margin there was a tumefaction of the conjunctiva of about 6x4x3 mm. with possible attachments to Tenons capsule and the sclera.

The growth was highly pigmented and somewhat movable.

All of the conjunctiva, both bulbar and palpebral, was so highly pigmented that this pigment could be easily rubbed off with a bit of gauze or cotton.

The cornea, refractive media and the fundus were normal.

Refraction as follows:

R + 50 C. ax. 135° 20/20

L + 75 S. + 25 C. ax. 130° 20/20

TREATMENT

Under local anesthesia this growth was removed, the conjunctiva undermined to procure sliding flaps, and sutures were applied.

Shortly after this a very considerable portion of the pigment of the conjunctiva had disappeared.

Recurrence—It was not long before a secondary growth made its appearance, this time at the lower cul-de-sac.

During the development of this second growth the universal increase of pigment about the conjunctiva seemed to be in direct ratio to the extent and duration of the growth.

This growth was likewise extirpated only to recur once more in the immediate vicinity.

We felt at the time that as each extirpation entailed the removal of a considerable portion of the conjunctiva, that a repetition of this procedure would produce a vexing entropion through cicatricial contraction.

The patient did not return to us for a considerable period of time after the second removal of the growth. When she eventually returned, February, 1926, the condition of the eye was worse than ever; not only was there a recurrence of the growth at the lower cul-de-sac, but the pigmentation of the

* Read before the Eye, Ear, Nose, and Throat Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927.

whole conjunctiva was extremely marked and active and in addition to this there was also quite a considerable mucoid secretion and an inflamed appearance of the whole eye. The vision, however, was not materially reduced, as the cornea remained transparent.

We decided to follow the next surgical procedure with the application of radium. It was thought advisable to have further counsel on this matter, and a prominent skin specialist, consulted by the patient, advised an immediate removal of the eye, with special emphasis on the fact that the orbit should also be eviscerated and that both the lids should be removed.

Some practitioners will remember this line of treatment is not unlike the practice observed by some of the old clinicians who consider border line melanotic growths of the eye as pre-eminently dangerous because of metastases or because of further invasion of adjacent structures.

Our very early medical training taught that a melanotic growth of the choroid or ciliary body called for an immediate enucleation.

Nevertheless we felt that before undertaking so drastic a measure we should follow our program of radiation.

The growth was once more removed and radium treatment immediately begun by Doctor Rodenbaugh.

Radium Dosage—Doctor Rodenbaugh used 25 mg. of radium salts in a bare tube with no filters. The length of time for each treatment varied between seven and ten minutes, at about 2 mm. distance.

The dates of the treatments and length of time for each treatment were as follows:

RADIUM TREATMENTS			
	M. G.	Time	Area
4-22-26	25—bare tube	7 min.	3 areas on lower lid
5-16-26	25—bare tube	10 min.	1 area on lower lid
6-19-26	25—bare tube	7 min.	1 area on lower lid
8-11-26	25—bare tube	10 min.	1 area on lower lid
10-22-26	25—bare tube	6 min.	1 area on lower lid
4- 1-27	25—bare tube	7 min.	1 area on lower lid

A few days after each treatment some reaction in the form of redness and lacrimation would follow, but no further discomfort. At one time the cornea lost a considerable portion of its epithelium, which, however, was restored nicely under treatment.

The appended reports of the pathologists leave no question that these growths were on the border line of malignancy and, as Doctor Ophüls very aptly expresses it, "in the case of melanomata one can never tell how vicious they are." Therefore the view that extensive surgery such as enucleation and evisceration was indicated was unquestionably justified before the advent of radium.

The last growth that appeared on the lower lid was a deep-seated infiltration which with the repeated applications of radium, assumed a globular form readily movable and apparently surrounded by connective tissue bands. This was easily removed through the conjunctiva.

Present Status—The extensive pigmentation of the conjunctiva has almost entirely disappeared; there has been no recurrence of any of the growths; the eye is quiet. There is a slight entropium and

the eyelashes of the lower lid have disappeared. There are remnants of some pigment infiltration in the upper part of the cornea.

Vision and refraction as follows:

R + 50 S. + 1 C. 145° 20/20
L + 75 C. ax. 130° 20/20

Conclusions—1. In view of the results obtained as well as those of other recorded cases, it does not now seem necessary or advisable to use extreme measures such as enucleation or orbital evisceration, in the presence of border line or even malignant growths of the conjunctiva or cornea or even of the interior of the eye.

2. Where growths are accessible they should first be surgically removed, followed by immediate radium applications.

3. Whenever growths show tendencies toward recurrence, irrespective of whether they are proven pathologically malignant or not, radium treatment should be given after removal.

4. Radium applications over the cornea are liable to produce exfoliation of the epithelium with more or less extensive ulcerations which, however, disappear after treatment.

5. We have then in radium, apparently, an invaluable therapeutic agent for safeguarding eyes which heretofore were considered hopelessly lost. This case, of course, will be followed for a considerable period of time in order to ascertain the permanence of the results so far obtained.

350 Post Street.

REPORTS OF THE PATHOLOGISTS

W. OPHÜLS, M.D. (Stanford University), states that it is a nonmalignant growth and his report follows:

Sections of conjunctiva show much pigment, containing star-shaped cells, in the upper layers of the connective tissue and considerable dark brown finely granular pigment in the basal cells of the epithelial covering. The upper layers of the epithelium are missing. The conjunctiva is otherwise normal. The surface epithelium is most intensely pigmented near the small tumor, which in the section measures about 2-3 mm. in diameter. It is situated in the connective tissue underneath the epithelium and consists of a delicate reticulum of connective tissue in which there are many lymphocytes and larger cells, with large protoplasmic bodies, and large vesicular nuclei. Many of the large cells are full of finely granular brown pigment. I did not find any mitoses in these large cells. Judging from the history of the tumor, it does not appear to be excessively malignant, but in the case of melanomata, one can never tell how vicious they are.

Diagnosis: Melanosis of conjunctiva; melanoma of conjunctiva.



G. Y. RUSK (University of California Hospital): Microscopic examination from each of the tumor masses show essentially the same picture. Superficially there is the epithelium of the conjunctiva of normal character supported on a thin lamina of connective tissue except in a few places where the tumor comes practically to the surface. The tumor consists of a mass of fairly uniform cells of moderate size and moderate amount of cytoplasm. There is remarkably little stroma. There is some interstitial hemorrhage and occasionally thin walled vessels are seen.

The cells of the new growth not infrequently show brown pigment in their cytoplasm. This pigment is considered to be melanin and it does not give an iron reaction. Mitotic division is fairly frequent while most of the cells conform to the average, occasionally, one with a large hyperchromatic nucleolus is seen. An occasional focus of lymphocytic infiltration occurs.

Since this case on two previous occasions was examined by Doctor Ophüls I took the opportunity to show the

present tissue to him and he expressed the opinion that the present material had the appearance of a somewhat more marked grade of malignancy than that previously examined.

While the growth is, of course, recurring and extending immediately beneath the conjunctival tissue, the specimens show none of the subjacent tissue from which an idea might be had as to the invasive properties of the growth.

Diagnosis: Melanoma.



PATHOLOGICAL REPORT

The report by C. Werner reads:

Mrs. H. M. H.—Pigmented Growth from Conjunctiva: The specimen consists of an irregular brittle, dark-brown piece of tissue, of 7 mm. largest diameter.

Sections show a structureless mass of large, clear polyhedral cells (average diameter 25 micron), a small percentage of them packed with a dark-brown granular pigment, which is also found scattered profusely between the cells. The nuclei vary greatly in size and shape, the majority containing two or more coarse nucleoli. Vitotic figures are quite frequent, some fields showing 3 or 5. The cell-mass is supported merely by a network of capillaries. At the margin of the new growth are some extensive fields of small round and plasma cells. The small neoplasm presents all the characteristics of a melanotic sarcoma. Against this diagnosis might be argued the long duration (reported fourteen years). Ewing, however, mentions a case likewise occurring in the conjunctival sac, of ten years' duration.

OSSIFYING HEMATOMA*

By JAMES B. BULLITT, M. D.

San Jose

DISCUSSION by Raymond G. Taylor, M. D., Los Angeles; Howard E. Ruggles, M. D., San Francisco; John D. Lawson, M. D., Woodland; Roscoe G. Van Nuys, M. D., Oakland.

IN presenting this case I am not attempting an exhaustive and general review of the subject, but am considering classification on the one hand and osteogenesis on the other.

There is some question whether the case I am to present should properly be designated as ossifying hematoma, or as myositis ossificans traumatica.

CLASSIFICATION

Myositis ossificans progressiva is clearly recognized as a general disease of progressive nature, beginning usually in early life, of unknown etiology, in which all, or many, of the muscles are slowly transformed into osseous tissue. The ossified man of the side show is an expression of this disease.

The second form of myositis ossificans is classified as circumscripta, the muscular osteoma, and appears at the site of repeated slight injuries or irritations; of this the "rider's bone" is the best known example.

The third form, localized to one site in the body, while produced by more than one etiologic factor, is most commonly the result of a single, severe, closed trauma, generally a contusion or a dislocation.

The term ossifying hematoma is frequently applied to the tumor resulting from this form of trauma. Thus Baetjer and Waters refer to seven-

teen cases occurring in the clinic at Johns Hopkins, sixteen the result of trauma received on the football field, the seventeenth from the kick of a mule, and all classified by them as ossifying hematoma.¹

They say: "This tumor does not belong to the tumor group, as it is inflammatory in origin. . . . We have already discussed this lesion in connection with scurvy."

They proceed: "Apparently what happens is as follows: the violent trauma evidently ruptures a blood vessel in the periosteum; the hemorrhage gradually raises the periosteum until the resulting pressure becomes greater than the blood pressure and the hemorrhage ceases. . . . In about three weeks calcium salts will be laid down in the periosteum and the hemorrhage beneath it will undergo organization with the deposit of calcium salts."

In differentiating this condition from malignant disease they say: "In hematoma, since the hemorrhage is limited by the periosteum, there is a definite, sharp calcium border, and . . . the calcium salts are more or less parallel to the shaft."

Finally, they say: "This condition must be differentiated from myositis ossificans."

Perhaps this definition of ossifying hematoma is the correct one, but certainly it would be most remarkable if Baetjer's seventeen cases, each following a single severe trauma, were all of this type.

CASES REPORTED IN LITERATURE

Noble describes these cases following a single severe trauma as myositis ossificans; singularly enough, however, he does not even refer to the condition of hemorrhage confined beneath the periosteum, although he does state that the organized blood clot is slowly transformed into cartilage and then into bone. From a limited review of this subject, the majority of writers have described these cases under the term myositis ossificans. The usual conception has been that periosteum and osteogenetic cells have been carried up into the traumatized soft tissues by divided and retracted muscle fibres, where the blood clot has served as a nidus for the subsequent bone formation.

Noble² makes this point, in discussing differentiation from sarcoma, that the bony mass is at first separated from the bone shaft from which it has been derived, the x-ray showing a line of light separating the old and the new bone. Later attachment is secondary and accidental.

In the *A. M. A. Journal* for December 4, 1926, Stone reports six cases, under the term ossifying hematoma, all occurring in young athletes and all the result of a single severe trauma. He apparently recognizes that some confusion exists between ossifying hematoma and myositis ossificans traumatica, but considers his cases properly characterized as ossifying hematoma, because "they were all under the periosteum," that is, all the bony masses removed were covered by periosteum. His conception appears to be that, as result of severe trauma, there is bleeding next the bone, that the periosteum is pushed up and

* Read before the Radiology Section, California Medical Association, at its Fifty-Sixth Annual Session, April 25-28, 1927.

gradually stretched into various shapes, in which ossification takes place. He states: "Each tumor was bone entirely covered by periosteum. Muscle was attached to the outside, but not once was it found inside the mass. This should be ample proof that it is not ossifying myositis."

Stone describes the mass found at operation in one case as "extending downward in two pieces, much like a partly opened pair of wings." It is certainly difficult to conceive of a confined blood clot stretching an intact periosteum in any such bizarre manner. His conclusion, based on the specimens all being covered by periosteum, and not enclosing muscle fibres, will bear further scrutiny.

Experimental efforts to produce injuries to the periosteum, followed by bone formation in the traumatized tissues, have been uniformly unsuccessful. Even the transplantation of a scale of bone with periosteum attached into muscular tissue by Davis and Hummecut produced a disappointingly small amount of bone, which in time was absorbed. Berthier carried out similar experiments, chiselling pieces of bone off the shaft and allowing the muscles to draw them away. But the bone never grew much larger than the flap which was cut. Why, following trauma and contusion, these growths result in some cases, while in others they do not, remains not satisfactorily explained. It seems necessary to fall back on the old standby, diathesis, called by Virchow the "ossifying diathesis."

PATHOLOGY

In a brief paper appearing in *Surgery, Gynecology and Obstetrics* for September, 1926, Leriche and Policard advance some new ideas relative to fundamental principles in the pathology of bone. They state that in osseous metaplasia the cells do not play the part classically attributed to them; that the osteoblasts do not secrete directly osseous substance between the cells, but that the osseous transformation of connective tissue is a phenomenon independent of all cellular action, an interstitial and humoral process. I quote: "the periosteum has no true osteogenic action. In normal conditions it prevents the formation of bone. It checks osseous infiltration. All the fasciculated structures, as muscle fibers or connective tissue bundles, do likewise . . . all prevent any osseous growth perpendicular to their direction. The osseous trabeculae, which in these conditions run against muscle or periosteum, can on the contrary grow in a parallel direction. They never can go beyond these fibers."

These observations of Leriche and Policard are especially interesting in this connection when considered in conjunction with Virchow's "ossifying diathesis." They further state that "a local calcareous oversupply incites in the neighborhood the formation of new bone. In that manner (I still quote) it is possible to explain the formation of heterotopic ossifications—muscular osteo-

mata, etc." Whence comes the local calcareous oversupply is, however, not quite clear.

THE AUTHOR'S CASE

The case I have to report is as follows:

H. R., a high school boy of 18, suffered a severe trauma on the football field on October 2, 1926, to the lower third of thigh. There was immediate pain and a soft swelling at the site of the blow. After about three weeks it was observed that the swelling was becoming harder. Roentgen examination on December 3, two months after injury, disclosed a lightly calcified mass on inner side of femur five inches above knee joint, about $3\frac{1}{2} \times 6$ cm. in size, with apparent attachment of about two inches along the posterior, inner aspect of the bone. The density was irregular in character. The conclusion was reached that the shadow was that of a calcified body in the soft tissues. Clinically the mass was at this time movable, although apparently hinged at point of attachment to femur. The surgeon in the case removed the mass by incision on December 26, finding it made up of bone, and reported at the time that it seemed to be so definitely attached to femur as to require the use of a chisel. He considered it an exostosis.

Here, in passing, it should be remarked that the consensus of opinion is that these cases should not be operated on for six months or a year, as there appears to be a definite growth period; until this is satisfied, removal is frequently followed by recurrence. Radiograms of this date (April 20, 1927), however, show no appearance of recurrence.

Roentgenologically this case is neither very remarkable nor very unusual. It lends itself, however, to consideration of the question of classification in the first place, and to a speculation as to osteogenesis in abnormal situations in general.

In the matter of classification, I have no fault to find with the term "myositis ossificans circumscripta," the term applied to circumscribed bone formation in muscle, the result of repeated or long-continued mechanical insults, as the rider's bone of the cavalryman, the shoulder bone in the soldier from carrying the rifle. These are recognized as being in a class separate and distinct from the cases immediately following severe trauma where muscular tissue has been torn and injured with resulting hematoma.

Should these latter be classified as myositis ossificans or as ossifying hematoma? If Baetjer and Waters are right, only those cases should be classified as of the latter variety in which there is hemorrhage beneath an intact periosteum, with succeeding ossification of the blood clot, the bone in such case being laid down parallel to the shaft and beneath the periosteum. This is one point made in the differentiation from periosteal sarcoma. As already remarked, if all seventeen of Baetjer's cases were of this type it seems a remarkable coincidence. Stone apparently accepts this as a correct definition of ossifying hematoma, stating that the specimens removed at operation were all covered by periosteum. I think this statement has to be taken probably with some reservations.

On the other hand, the term "myositis ossificans" seems inappropriate to many of these cases. While muscular tissue takes part in the injury, the impulse to bone formation does not have its

inception in the muscular tissue, which remains entirely passive, the bony growth, whatever its origin, taking place into the blood clot, and growing into the muscular planes rather than being of them.

The pathogenesis of the ossifying myositis is still a much debated question; whether the bone tissue is derived from displaced periosteum or is the result of a traumatic aseptic myositis, causing a transformation of the adult mesenchymal tissue into the undifferentiated embryonal form, thereby changing its functional and chemical properties with consecutive heterotopic bone formation, is as yet not definitely decided. However, the latest investigations are more in favor of the latter theory.

I am indebted to Dr. Frederick Proescher, pathologist of the San Jose Hospital, for the following discussion of the pathogenesis of these formations of bone, and the microscopical examination of the specimen, which is appended:

"The rapid formation of muscle bones, and their partial recurrence after removing the primary growth, lead some investigators (Rokitsky, Cohen, and O. Weber) to the assumption of a blastomatous process. But the spontaneous stopping of the growth after it has reached a certain size, and its regression due to osteosclerosis and osteoporotic processes, speak against the blastomatous character. A recurrence after removing the primary growth does not speak for or against its blastomatous nature, since a complete removal of the ossifying tissue is not probable.

"At present there are two theories concerning the formation of muscle bones. Pochhammer, Sudeck, and others believe that only the periosteum is able to form bone tissue, while Gruber believes that inflammatory changes in the muscle without involving the periosteum of the bone may cause an ossifying myositis.

"On account of this divided opinion concerning the genesis of the muscle bones, different terms are applied to this disease—myositis ossificans or myopathia osteoplastica (G. B. Gruber) or periosteal callus formation (Sudeck).

"The following is a brief resumé of the ossifying process: Bone injuries are repaired by the periosteum and endosteum. The great productivity of the periosteum is clinically an experiment proven beyond a doubt. Numerous experiments have shown that detached periosteum cells may keep their vitality for at least seventy-two hours.

"There is no doubt that the periosteum is the chief bone-forming tissue, but numerous observations have definitely shown that connective tissue will also form bone tissue, as observed in the repair of fractures.

"The question arises, is the osteogenetic cell layer of the periosteum the only structure from which bone is derived, or may other tissues under changed conditions also form bone? The matrix for the formation of the bone structures is exclusively the mesenchyma. The original indifferent mesoderm in different localities not only forms bone and cartilage, but also smooth muscles, membranes, fascia, vascular endothelium, red and white blood cells.

"The original syncytial mesenchyma (Hueck)

forms a porous mass into which living cells are transposed. If the pores remain open the mesenchymal protoplasm forms reticular connective tissue, otherwise fibrillary connective tissue is formed.

"V. Korff and Hartmann as well as Hueck believe that the mesenchymal syncytium forms the basis for the chondro- and osteogenesis. Through certain mechanical influences the cellular-fibrillary substance is arranged in arcade-like formation, forming a network with more or less closed cavities. In these channels and cavities, through proliferation of the mesenchymal tissue, nuclei containing protoplasmic formations are deposited. Chondro- and osteoblasts, by a complete enclosure, are transformed into cartilage and bone corpuscles.

"At the same time the ground substance shows characteristic changes. It absorbs chondriotin sulphuric acid and forms cartilage, or it is impregnated with lime salts and becomes bone.

"Undoubtedly a certain undifferentiated stage of the mesenchyma can be transformed into cartilage and bone tissue, but not adult connective tissue. The connective tissue cell is in the adult bone transformed into bone cell; since it is surrounded by a firm substance it is unable to make further division, but the osteoblasts form always new layers of bone. Another mode of bone formation is characterized by the formation of cartilage which is later replaced by osteoblastic tissue.

"If a direct transformation of cartilage cells into bone cells is possible it is questionable, but so much is certain, that we have two kinds of bone formation. One is of connective tissue, the other of cartilage origin. There is no doubt that the connective tissue, in the form of embryonal syncytial mesenchyma, is able to form bone without an intermediary cartilage formation. This ability is due to the presence of osteoblasts which remain during the postfetal life in the osteogenetic cambium layer of the perichondrium and periosteum, also in a variable number in the bone marrow framework.

"The finding of ossifications in almost every organ of the human body proves that the connective tissue cells of the adult organism under certain functional and chemical influences may again acquire osteoblastic properties. We, therefore, can assume that bone formations in the skeletal muscles, if of traumatic origin, are not necessarily derived from misplaced periosteum but may be heterotopic ossifications which are genetic the same as true bone formations in the kidneys, lungs, aorta, or in scars of muscles. In summarizing we come to the following conclusions:

"The periosteum and endosteum of the adult organism are not the only matrices from which bone tissue can be formed, but under certain conditions the connective tissue may regain the ability to form bone. A definite ossification form is typical neither for the periosteum nor for the connective tissue; their osteoblastic abilities are not bound on a precartilaginous stage."

REPORT ON SPECIMEN

Microscopical Examination of Specimen—Embedded in a cellular tissue made up of dense fibrillary connective tissue, bone marrow and fat marrow containing many capillary and larger blood

vessels, are numerous bone trabeculae. The capillary vessels are surrounded by a few or a dense mass of lymphoid cells. The larger blood vessels are greatly engorged with blood. The bone trabeculae surrounding the marrow spaces are covered with a thin layer of osteoid tissue to which numerous osteoclasts are attached. Here and there are a few osteoblasts causing a moderate resorption of the bone trabeculae. Some bone trabeculae do not show lamellary formation, but the structures of immature bone tissue, consisting of irregularly arranged cells within the bone trabeculae, surrounded by a layer of osteoid tissue to which numerous osteoblasts are attached. The connective tissue in the immediate neighborhood contains a great many nuclei, forming an intermediate proliferation zone. A few bone trabeculae contain small islands of non-calcified cartilage cells. Of interest are some areas which are suggestive of an enchondral ossification, on the basis of calcified cartilage. The bone trabeculae are of irregular shape and made up of embryonal bone tissue containing small marrow spaces.

Garden City Bank Building.

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DISCUSSION

RAYMOND G. TAYLOR, M.D. (1136 West Sixth Street, Los Angeles)—Doctor Bullitt's comprehensive presentation of this subject and his rather complete discussion of the various theories and classifications leave but little to be said except to confirm his expressed deductions and opinions.

I have had the same experience in reference to being unable to reconcile the clinical and roentgen appearance of some of these lesions with the description given by Baetjer and Waters, and I feel with the essayist that their description certainly does not cover many of the lesions we see that are of traumatic origin. I have seen at least one rather extensive lesion of traumatic origin in the femur that certainly was not covered by periosteum. This recurred twice after removal, and after the third operation did not recur. The very limited experience we have had in observing these lesions leads us to believe that recurrences are probably, in most cases, due to incomplete removal.

✽

HOWARD E. RUGGLES, M.D. (Fitzhugh Building, San Francisco)—In Rosenstirn's³ extended discussion of myositis ossificans he calls attention to the fact that the posttraumatic and progressive forms of this unusual condition are identical in their pathology, both showing a progressive ossification of a pre-existing hemorrhage, the only difference being that in the traumatic cases the hemorrhage and the ossification are limited in extent.

A somewhat similar condition is also seen at times particularly about the elbow joint where there has been a dislocation resulting in hemorrhage which is followed by ossification.

Apparently the periosteum plays no part in this bone formation.

Doctor Bullitt is to be congratulated upon his presentation of this interesting condition.

✽

JOHN D. LAWSON, M.D. (Woodland Clinic, Woodland)—Doctor Bullitt has presented this subject with his usual thoroughness, and is entitled to much commendation on his effort.

These lesions which are rather typical are gener-

ally not difficult of diagnosis, which can be made only by roentgenogram.

Some confusion has existed in regard to the differential diagnosis between ossifying hematoma and myositis ossificans.

Stone especially holds to the view that all ossifying hematomas must be covered with periosteum. I think the majority of the men will not concur in this, inasmuch as these lesions may be noted somewhat distant from periosteum, and biopsy reveals no evidence of this tissue.

The lesions which we have noted have occurred during the second and third decades, because it is about this time that patients are subjected to violent traumatic agencies. They are much more common in the male for this reason.

Probably many cases of ossifying hematoma are passed up without diagnosis by the surgeon and internist for lack of roentgen investigation. Any disability following violent trauma to the soft tissues, which persists longer than one would ordinarily expect, should be very carefully investigated to show the presence or absence of this condition.

✽

ROSCOE G. VAN NUYS, M.D. (Oakland Bank Building, Oakland)—This excellent discussion of Doctor Bullitt's is certainly a contribution to the subject. My observations of this condition have been very limited. The two cases which I can remember having seen certainly did not seem to be of periosteal origin.

In the future I shall look for these cases with greater interest.

NON-TUBERCULOUS PULMONARY SUPPURATION *

By PHILIP H. PIERSON, M.D.
San Francisco

DISCUSSION by S. C. Davis, M.D., Tucson, Arizona; Harold Guyon Trimble, M.D., Oakland; Robert L. Cunningham, M.D., Los Angeles.

DURING the past decade there has been a pronounced tendency to classify as tuberculous a great many people suffering from chronic lung suppurations. This has had its favorable aspect, for it emphasized the importance of recognizing many signs and symptoms present in tuberculosis. But it also had a disadvantage which many of these waves of enthusiasm have, namely, of considering many patients as tuberculous who were suffering from some other disease. Within the last two years or so the pendulum has been swinging in the other direction, and there has been a desire to avoid the diagnosis of tuberculosis whenever it is not evident. The natural consequence will be a benefit to us all through a greater interest in studying these cases, and through a more careful and early diagnosis of tuberculosis, and patients will be benefited by receiving specific treatment outside of sanatoria for chronic infections. It is hoped that the data presented in this paper will help to clarify the symptom complex assigned to abscess, bronchiectasis and chronic pneumonia. Let us first consider pulmonary abscess.

PULMONARY ABSCESS

Many etiological factors have been mentioned, but for simplicity's sake, I will group the cases reported under five headings: Those due to aspiration, embolism, pneumonia, rupture of an

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empyema and trauma. One of the most important helps in diagnosis of diseases of the lungs is a carefully taken history. Non-tuberculous disease is to be suspected in an adult whose infection has been chronic since early childhood. Some of these arise from the aspiration of a foreign body, and careful questioning will reveal this as an etiological factor. But it is not always possible to elicit this information on questioning, even if it is the cause. Roentgenologic study reveals opaque bodies and gives suspicious evidence on non-opaque objects, such as a kernel of corn, peanut husk, etc., which form a ball-like valve in a bronchus. As inspiration is stronger than expiration, air enters the lung beyond the obstruction, where its partial retention causes a localized emphysema, distal to the object.

In the group of abscesses here reported, six were the result of aspiration, and reference to the chart will show that there were several materials causing the damage—seawater, chicken bone, blade of grass, a piece of nasal bone following operation on the nose, septic material from the mouth—pus from an osteomyelitis of the jaw, and bloody mucus following tonsillectomy under heavy ether anesthesia. Following such aspira-

tion, there is generally a period of twelve to fifteen days, during which time, there may be no symptoms, or there may be the gradual onset of fever, malaise and an unproductive cough; towards the end of this time, chills and sweats are added to the picture, which persist until the abscess ruptures.

The history of the patient who aspirated seawater was briefly as follows: Prior to his fall from a ship, he had been well except for occasional "head colds." Following the accident, during which he was thoroughly chilled, he had a slight, non-productive cough, not relieved by medicine, for two weeks. He then began to have some chills and fever. On the twentieth day, this had reached 103 degrees F. and he expectorated foul sputum. Both temperature and sputum gradually subsided and he was practically well two months later. The anerobic bacteria, probably the cause in this case, explain the long latent period.

Eleven of these abscesses were the result of emboli, three of which followed tonsillectomy, one each followed operation for cancer of lip, laceration of the face, disease of the gall bladder, acute appendicitis, fibromyoma of the uterus, hernia, stone in the kidney, and one was a postpartum embolus.

The history of the case of the abscess caused by a postpartum septic embolus from an infected vessel in the broad ligament is presented for comparison with the abscess caused by the aspiration of seawater. The patient, a woman of 30 years, entered the hospital for confinement of her fourth child on November 20, 1926. She had been having pain in her right lower quadrant for some weeks. Three or four days prior to and following her delivery, she had a temperature ranging from 100 degrees to 101.5 degrees F., this being due to a probable pelvic phlebitis, and on the fourth day she was seized with a sharp pain in her right lower chest, more pronounced with breathing. She had no cough or expectoration. Locally there was slight dullness, but no change in breath sounds. Within the next six days, during which time the temperature remained about 101 degrees, signs at the right base developed including dullness, diminished breathing and slight egophany. On this day, I aspirated one ounce of blood-stained, cloudy fluid. The breath sounds gradually became harsher and closer to the ear. On the 7th day of December she expectorated 150 ccm. of purulent sputum. Postural treatment was instituted, and within seven days expectoration had ceased and the patient was afebrile. A roentgenogram taken on the 7th day of December showed a definite cavity 1½ inches in diameter with a fluid level. Within four days this had become very much smaller and within three weeks it had entirely disappeared.

I think the importance of small emboli as factors in the production of postoperative complications has not received sufficient attention, or at any rate, not sufficient data has been kept to give us an estimate as to how often emboli

		Cured		Improved		Unimproved		Dead	
Medical	15	10		3		2		0	
Bronchoscopy	2	1				1			
Surgery	10	4		2				4	
Pneumothorax	3			1		1		1	
Totals		30	15	6		4		5	
ETIOLOGY									
Pneumonia	10					Lobe			
						LLL	Improved		
						RML	Improved		
						RML	Cured		
						RLL	Unimproved		
						RLL	Unimproved		
						LLL	Improved		
						LLL	Dead		
						RLL	Unimproved		
						RML	Cured		
						RML	Cured		
Aspiration	6	1	Posttonsillectomy			RLL			
		1	Sea Water			LLL	Cured		
		1	Blade of grass			RLL	Dead		
		1	Nasal bone, post-operative			RLL	Cured		
		1	Chicken bone			RLL	Improved		
		1	Pus from disch. Osteomyelitis (jaw)			LLL	Cured		
Embolic	11	1	Hernia			RLL	Cured		
		1	Postpartum			RLL	Cured		
		1	Kidney stone			LLL	Cured		
		1	Operation on lip			LUL	Unimproved		
		1	Appendix			RLL	Dead		
		1	Gall bladder			RLL	Cured		
		1	Laceration of face			LUL	Cured		
		1	Fibroid			LLL	Cured		
		3	Posttonsillectomy			RUL	Dead		
						LLL	Improved		
						RLL	Improved		
Trauma	2					RUL	Cured		
		1	Fractured ribs			LUL	Cured		
Chronic Empyema	1					LLL	Dead		
AGE									
Under 10	10-20	20-30	30-40	40-50	Over 50	Unknown			
3	2	2	11	4	6	2			

Table 1—Results of Lung Abscess Cases.

occur following operations. A small, sterile embolus frequently breaks off from tissue which has been roughly handled or crushed, and on reaching the lung may cause very few signs or symptoms, provided the circulation in that part is good and there is no chronic infection present. In such instances, the patient may complain of a small amount of pain, there may be a slight rise in temperature, both of which are attributed to some other cause during the early days of convalescence. But if this embolus lodges in a portion of the lung where there is more or less congestion, a pneumonic patch will develop, which often undergoes necrosis with the formation of an abscess. An embolus from a septic field, such as was present in this case, frequently causes an abscess. Some writers have reported a proportionately large number of abscesses following tonsillectomy. It is possible that some abscesses are the result of aspiration of infected material into a part of the lung which is locally less resistant. Aspiration was apparently the cause of the formation of an abscess in one of my patients who was suffering from a chronic bronchitis, as the result of an upper respiratory infection when he was operated upon under a long ether anesthesia. The experimental work of Holman and Chandler leads us to believe that a great many of these posttonsillectomic abscesses following tonsillectomy are the result of infected emboli from the seat of operation, especially where there is infection and considerable crushing of tissue. In this series, four such abscesses were found, three of which I attributed to emboli, and the fourth to aspiration. The diminished frequency of abscess following tonsillectomy is probably due

to better administration of the anesthetic and to the suction apparatus devised by Sewell, which keeps the pharynx freer from blood and mucus. Bleeding is controlled by tying the vessels. This leaves a cleaner postoperative field.

Ten cases of pneumonia, all of the bronchopneumonic type, resulted in abscesses. The important point, so far as the history with reference to pneumonia is concerned, is that a protracted fever recurring after the initial infection has apparently subsided, very often represents the formation of an abscess or the development of an empyema. Under this heading, I placed a few abscesses of which the etiology was not clear, although their history suggested pneumonia. In abscesses, as in chronic pneumonia, an infection in the upper respiratory tract plays an important rôle. This will be dealt with more fully later. The dullness, diminished or absent breath sounds and tactile fremitus found in parietal empyema may justify aspiration for diagnosis. If there is doubt as to whether empyema or abscess is present, do not push the needle too far and so enter the lung. Abscesses and interlobar empyemas should never be needled for diagnosis, unless there is visible evidence of adhesions between visceral and parietal pleurae. In one case of this series this procedure of needling was followed by empyema. This danger is too imminent not to mention it in the most disparaging terms.

The question has often been raised as to why trauma to the chest wall results in pneumonia, abscess or exacerbation of a tuberculous focus in some instances, and not in others. I do not know that anyone has been able to explain this conclusively. But the lowering of one's resistance

TREATMENT						RESULT			
Etiology	No.	Medical	Surgical	Pneumothorax	Bronchoscopy	Cured	Improved	Unimproved	Dead
Pneumonia	10	4	3	2	1	1 (RML) 1 (RML)	1 (LLL) 1 (LLL) 1 (RML)	1 (RLL) 1 (RLL) 1 (RLL)	1 (LLL)
Aspiration	6	2	3		1	1 (LLL) 1 (LLL) 1 (RLL) 1 (RLL)	1 (RLL)		1 (RLL)
Emboli	11	7	3	1		2 (RLL) 2 (LLL) 1 (LUL) 5 1 (RLL)	1 (LLL) 1 (RLL)	1 (LUL)	1 (RLL) 1 (RLL)
Trauma	2	2				1 (RUL) 1 (LUL) 2			
Chronic Empyema	1		1						1 (LLL)
Totals	30	15	10	3	2	15	6	4	5
LOBES									
R. U. L.		R. M. L.		R. L. L.		L. U. L.		L. L. L.	
2		4		12		3		9	
SEX									
Male					Female				
18					12				

Table 2—Treatment and results following various types of lung abscess.

as a result of an accident, an irritation of the pleura with congestion of the underlying lung, in the presence of the pneumococcus, streptococcus or tubercle bacillus, is the most plausible explanation for the development of disease in the group of cases here discussed. Broken ribs are often treated very casually with adhesive strapping, but an accompanying damage to the lung should always be kept in mind, and repeated examinations of the lungs made to determine whether a resultant disease has developed.

Let me here stress the great value of a careful roentgenologic study in determining the location and character of all abscesses as well as the etiology in some instances. Before the rupture of an abscess, it is difficult to distinguish, radiologically, abscess from pneumonia. Following the rupture, sinking of the cavity is seen fluoroscopically and a fluid level is usually present. Its disappearance following postural drainage, the regression of the pneumonic infiltration and of the size of the abscess are most clearly brought out by roentgenographic studies.

Repeated negative examinations of the sputum for tubercle bacilli in the face of considerable expectoration are in favor of a pyogenic abscess rather than of a tuberculous lesion. Elastic fibres in the early stage of an abscess are very often found when a thorough search is made.

THREE MAJOR FACTORS IN DIAGNOSIS

I feel that these three factors, namely, history, careful roentgenographic study and examination of the sputum are of prime importance in the diagnosis and treatment of pulmonary abscess. Physical findings are often very indefinite. If the abscess is near the pleura, the most constant signs are dullness, diminished breathing, which becomes bronchial as the pneumonic area progresses. After the rupture of the cavity, we sometimes hear an amphoric whisper, but this is not at all constant. Later on, râles appear, but in relatively small numbers. A centrally located abscess may give no physical signs, due to the overlying normal lung. A slight dullness is sometimes present. Hemoptysis has often been mentioned as pathognomonic of pulmonary tuberculosis, but in this series, there were definite hemoptyses of over an ounce in ten of the cases, and of some blood in practically all of the others. Tuberculosis may be localized either in the upper or lower lobes, which further confuses the differential diagnosis.

TREATMENT

As soon as the diagnosis of pulmonary abscess is established, whether before or after rupture, medical treatment is indicated for a period of time, its length depending upon the progress of the lesion and the ability of the patient to cope with the infection. Admitting that my series is small, which may lend a rather unfair aspect as to treatment in general, it nevertheless shows a mortality of $16\frac{2}{3}$ per cent. Of fifteen cases treated medically, none died and only two were reported as unimproved, this being at least partially due to their refusal to submit to surgical treatment. Postural treatment is of

more value in acute pulmonary abscesses than in chronic abscesses, and should always be instituted for at least three or four weeks following the rupture of an abscess, and longer if needed, provided the patient is making satisfactory progress. If at the end of this period, no progress is noted, either as evidenced by diminution of temperature, amount of expectoration or improvement in general well-being, bronchoscopy should be considered.

I do not mean that one should delay bronchoscopy four to six weeks in cases in which either the history or roentgenogram gives evidence of a foreign body, since the removal of these, causes abscesses to clear up promptly. Its use at the time indicated is largely to remove obstructing granulation tissue and allow freer drainage. Patients treated by bronchoscopy have been temporarily very much inconvenienced by the procedure, and I fail to see the value therapeutically of the aspiration of a relatively small amount of pus once or twice weekly. In more experienced hands or in a larger series, this procedure may have benefits not at present apparent to me.

Pneumothorax has been recommended by some, including Edouard Rist, but when the abscess is close to the pleura, it is a dangerous procedure to undertake. Even in giving small amounts of air, a slight tear in the pleura frequently results in pyopneumothorax. Occasionally this air may be under pressure, the result of leakage in only one direction. In centrally located abscesses, it is indicated and often of great benefit. The case reported in this series, I would be inclined to call cured, had the patient not disappeared after about eighteen months of most favorable progress.

During the period of waiting, counter irritants over the affected part of the lung are helpful, and bed rest, plenty of fresh air and sunshine and a high caloric diet are needed to keep the patient in as good physical condition as possible. It is rare that drugs are necessary. Occasionally a mild expectorant may be used to save the patient from the tiresome effort of raising thick sputum, and sedatives may be necessary at night to insure sufficient rest.

In these cases where medical treatment has failed after a period of about four to six weeks, surgery is indicated. It is generally agreed that in the absence of adhesions, the two-stage operation is necessary. The first procedure is to resect

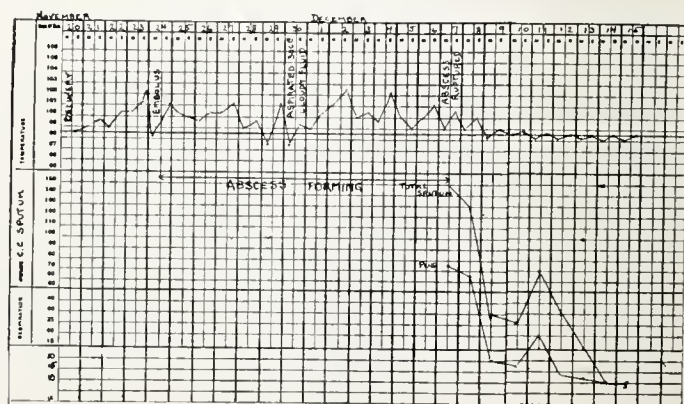


Fig. 3—Chart. Record of case quoted. Lung abscess due to septic embolus.

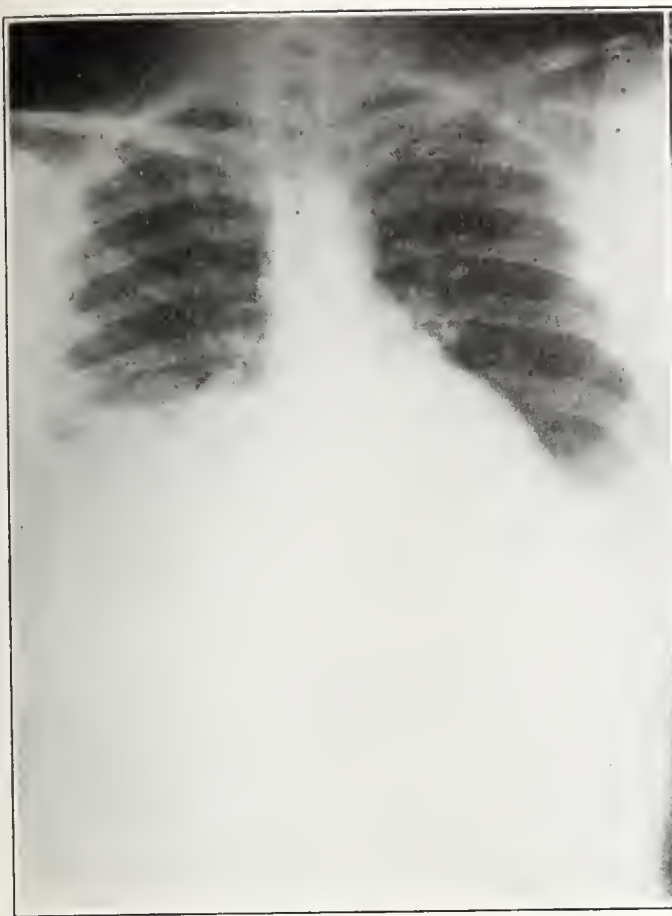


Fig. 4—X-ray of lung on December 7, showing abscess in right lower lobe with fluid level.

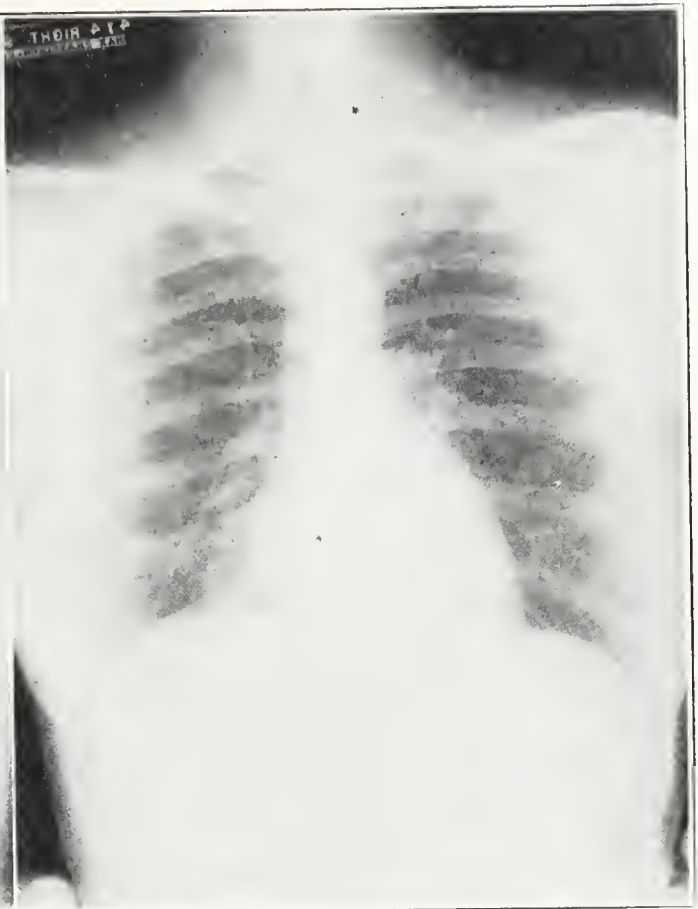


Fig. 5—X-ray of lung, same patient, February 1, showing complete disappearance of abscess shadows.

sections of one or two ribs and cause adhesions between the two layers of pleura, either by suturing or packing with gauze. After three or four days, incision with the cautery is made into the abscess and drainage is instituted. The mortality of this treatment in acute abscesses is relatively low and proportionately high in chronic abscesses, including those in which empyema has resulted. The bronchial fistula should be kept open for a considerable time so that thorough drainage may be obtained from all the small pockets surrounding the central abscess.

The after care is very essential, including sunshine, fresh air, high caloric diet, etc. For a year or more the patient must be very careful to avoid acute respiratory infections and whenever possible he should live in a warm, dry atmosphere.

To summarize, in regard to abscesses, let me say that a careful history is very important in defining the etiology of the lesion; the physical signs are very meager as compared with a tuberculous lesion of the same extent; the x-ray is indispensable for localization of the abscess and for a better knowledge as to the progress of the disease. Medical treatment should always be tried for at least four to six weeks. If no improvement is made by that time, surgical treatment is indicated. The mortality in general is low in acute abscesses but high in the case of chronic disease.

CHRONIC PNEUMONIA AND BRONCHIECTASIS

A large number of patients with chronic cough and purulent expectoration have been diagnosed as having bronchiectasis, but I feel that if a more

accurate diagnosis were made, some being classified as having a bronchiectasis and others a chronic pneumonia, our prognosis would be better in the latter group than in the former. First, let me describe the chief difference in the pathology of the two conditions.

Given a streptococcic pneumonia of the type so often seen associated with influenza, the infectious process is located in the peribronchial tissue surrounding the smaller as well as larger bronchi, and also invades the stroma of the alveoli. In some instances the infection weakens the bronchial wall, replacing some of the normal elastic tissue with fibrous tissue and by its dilatation, saccular cavities or cylindrical widening of the bronchi result. Chronic infection becomes implanted upon the mucous membrane divesting it of its normal epithelium, and a true bronchiectasis is produced.

Very often the infection while present in the peribronchial tissue extends by contact into the alveoli whose interstitial tissue is infiltrated and replaced by scar tissue, resulting in a fibrosis extending beyond the bronchial walls and throughout the parenchymatous tissue. The term "chronic pneumonia" is applied to that group of cases in which the fibrosis in the parenchyma predominates, at least relatively, over that surrounding the bronchi, and in which slight cylindrical dilation may be present or less often, saccular cavities. This pulmonary fibrosis without marked bronchial dilatation generally does not cause the severe symptoms present in bronchiectasis. A mild phase of this fibrosis exists which is yearly represented by recurring attacks



Fig. 6—Pathological section of chronic pneumonia. Note interstitial fibrosis predominating over bronchiectasis.

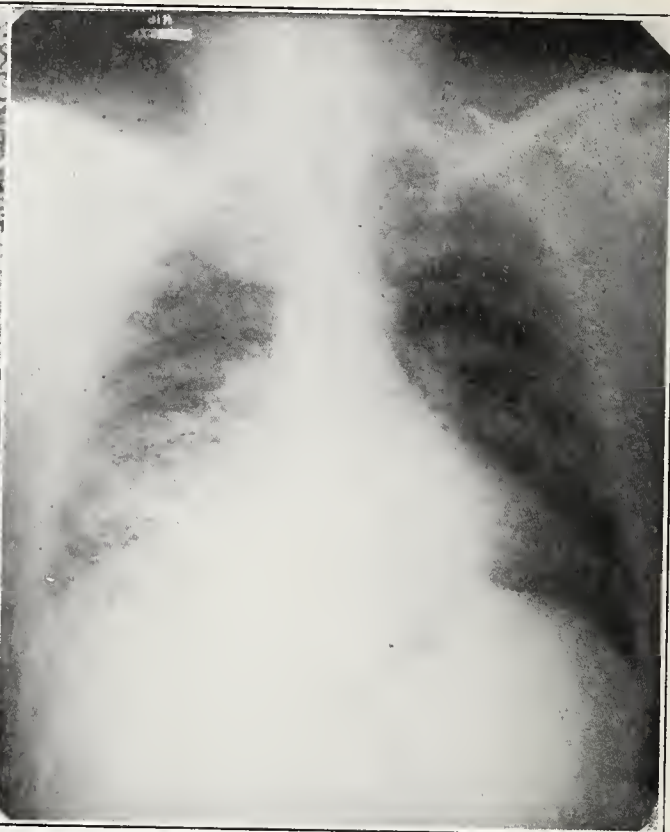


Fig. 7—Chronic pneumonia. Right base with "normal" lipiodol study.

of infection in the winter, disappearing in warm weather. On physical examination, a patch of coarse indeterminate râles are periodically found in the same place, generally disappearing some time after the symptoms of the respiratory infection have passed. As this type of infection resulting in fibrosis does not cause very marked shadows in the x-ray, nor sufficient distortion to produce a typically abnormal picture after the lipiodol injection, it is often overlooked. This mild form of chronic pneumonia can bear particular emphasis, because it is so often the seat of chronic recurring infections, attracting little attention. It is in this mild form while still in its early stages that upper respiratory infections from the sinuses and tonsils play a very important rôle. Repeated infections with involvement of this fibrous tissue cause a progressive disappearance of normal parenchyma, which is followed as a rule by a tendency toward bronchiectasis. Consequently, the early recognition of these changes and their correction will prevent subsequent damage which is irreparable.

In reviewing a considerable number of cases in private practice and in the Stanford Chest Clinic, it would seem that pneumonia, influenza and sinus infection play a prominent part as etiological factors. Whooping cough, and, less often, measles in childhood should also be mentioned.

TREATMENT

It is evident, then, that the early recognition of this gradual infectious process in the lung offers a considerable field for preventive measures. Local treatment is often of help, including among other things, diathermy and the radical clearing up of upper respiratory infections. A

change to a warm, dry climate is also very beneficial in preventing further progress. This is particularly true in children in whom with energetic therapy, the process clears up permanently.

Whenever there is retention of mucus or pus, postural drainage should be instituted. In the more advanced stages of this fibrosis, as well as in bronchiectasis, postural drainage is of some benefit, but it does not have the lasting effect obtained in the earlier stages of the disease.

Improving the general health of the individual is of value. Sun baths, either natural or artificial, regulation of diet, proper exercise and plenty of rest are essential. In advanced cases of bronchiectasis, or chronic pneumonia, medical treatment may alleviate symptoms but rarely eradicates the disease. In spirochetal infections, as well as in some bacterial infections, salvarsan may be distinctly helpful. Patients may be made more comfortable by emptying these pockets by postural drainage at certain times during the day, an endeavor being made to prevent their overflowing and infecting neighboring tissue. This will relieve them of the constant cough and expectoration which makes them so unacceptable in society or in a gainful occupation. Here again, bronchoscopy has been recommended by some, with great benefit, due largely, I feel, to the removal of granulations and better drainage with posture.

Of forty cases treated with autogenous vaccine, 50 per cent were distinctly relieved of cough and expectoration for varying periods. This seems to be the extent of its therapeutic value; but even this to a person with such distressing symptoms as are present in this group of cases, is very welcome. Unfortunately, the disease is bilateral

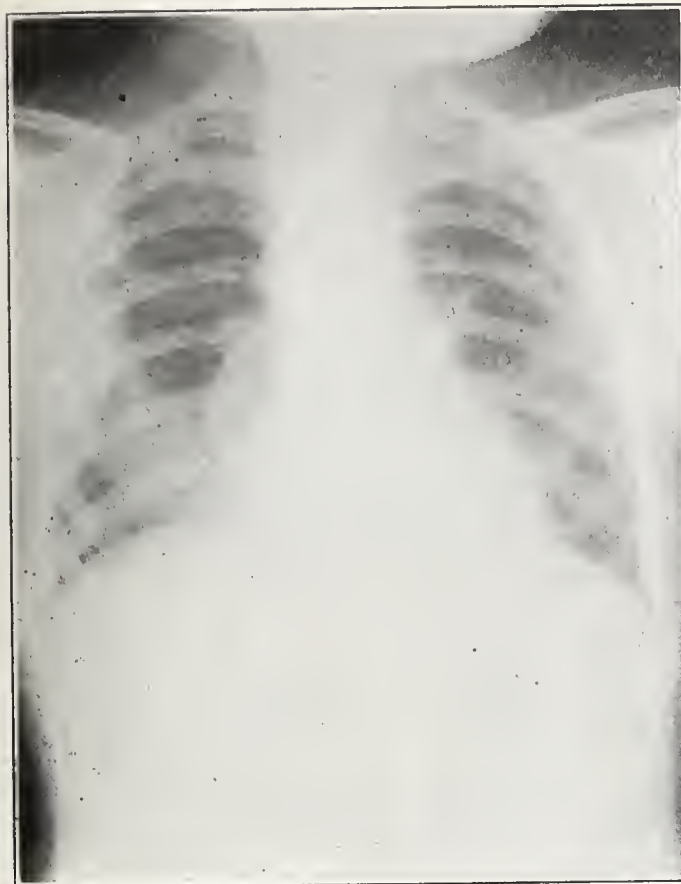


Fig. 8—Base of right lung of child with chronic pneumonia of six months' duration.

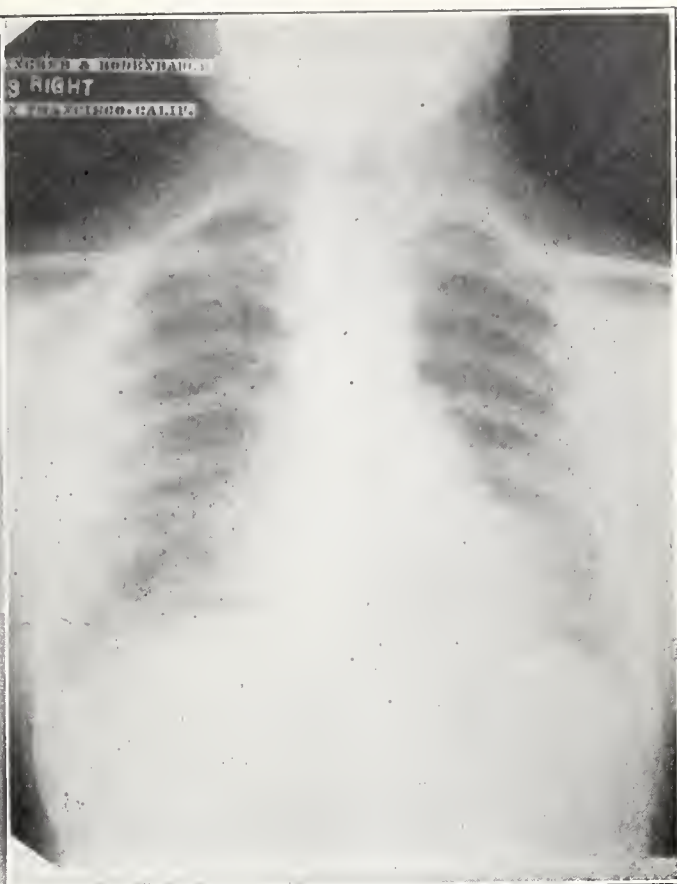


Fig. 9—Same, six months later. Note clearing at right base.

in a large proportion of cases. Whenever a unilateral condition exists which does not improve with medical treatment, surgical measures are indicated which may consist either of thoracotomy with drainage of one or more large cavities, or of Graham's cautery lobectomy. Opinions differ as to the value of this procedure because of the considerable risk of hemorrhage and cerebral emboli, but theoretically it has many advantages. Extrapleural thoracoplasty may be of value in unilateral cases, together with avulsion of the phrenic nerve, which offers a means of compressing the affected lung. Benefits from pneumothorax are very few and have the same disadvantage as previously discussed under pulmonary abscess.

A few words should be said with regard to lipiodol. Its use has been very helpful in distinguishing true bronchiectatic cavities, with marked cylindrical or saccular dilatation from a diffuse fibrosis. Its administration is relatively simple, requiring only at time a small amount of local anesthetic in the pharynx and larynx, the warmed oil being dropped slowly down through the larynx, while the patient holds his own tongue in full extension. Before the procedure is started, I feel that it is very important to prepare the patient by postural drainage of the cavities for at least one hour. Then the patient should undergo no exertion from the time he receives the lipiodol until the picture is taken, for exertion often starts a paroxysm of coughing and expectoration of the oil.

Summarizing our considerations of bronchiectasis and chronic pneumonia, the early recognition of the latter disease, the energetic treatment of

upper respiratory foci of infections, local treatment and attention to general health will often offer a better prognosis in chronic pneumonia alone than when associated with bronchiectasis. A negative lipiodol study, if carefully carried out, gives evidence against bronchiectasis and in favor of chronic pneumonia. Postural treatment and autogenous vaccines make life more bearable for the inoperable cases of bronchiectasis, while in unilateral disease, surgical treatment offers increasing hope of alleviation of symptoms and cure of the disease.

490 Post Street.

DISCUSSION

S. C. DAVIS, M.D. (27 South Scott Street, Tucson, Arizona)—I have never heard this subject so ably discussed. Non-tuberculous pulmonary pathology is especially of interest to us, located as we are, where many come to find the mild, dry climate that Doctor Pierson speaks of in his treatment. Especially are we interested in the chronic pneumonias and bronchiectasis and our opinion that some of the cases that are reported to have repeated attacks of pneumonia, the pathology is none other than an acute inflammatory condition of the lung tissue surrounding a bronchiectatic process.

Many such cases of pneumonitis remain practically free of attacks while residing in Tucson.

We are very cautious in making or corroborating a diagnosis of tuberculosis in basal pathology unless we have a positive sputum.

We hope many will have the opportunity of reading this paper, which covers the subject in detail and be benefited to the extent that many cases previously diagnosed tuberculous will be properly cared for.

✽

HAROLD GUYON TRIMBLE, M.D. (707 Latham Square Building, Oakland)—There is nothing I can add to this splendid paper. It gives in detail the current thought on these relatively common types of lung infections. There are some points I feel sure that

Doctor Pierson would have elaborated, had space permitted.

Carefully controlled heliotherapy, preferably natural sunshine—the various lamps being only a substitute—is of definite value even during the more acute phases of lung abscess. In the chronic stages of all the non-tuberculous lung suppurations it is of marked benefit. The direct effect on the lung itself may not be marked, but the general improvement in the patient's condition is usually such that if surgical measures are indicated, the attending shock is greatly minimized. This type of therapy is particularly neglected by surgeons who have not the opportunity of frequent contact with a chest consultant.

In chronic pneumonia and bronchiectasis the "radical clearing up of upper respiratory infections" is fundamental and frequently neglected. One can have but little hope of a permanently successful result if this is overlooked.

Drugs offer little except symptomatic relief in all of these infections. However, the time-honored creosote is often of marked value in chronic pneumonitis. It is best given as guaiacol carbonate in 5-grain capsules as often as every two hours. Occasionally this is not well tolerated—then the soluble potassium guaiacol sulphonate in the same dosage is usually accepted. This sometimes clears up basal râles of months standing.

For autogenous vaccine we are using the "selective pathogen" method of preparation (culturing a sample of the carefully collected fresh sputum in a sample of the patient's own blood). Theoretically, those organisms will grow most abundantly against which the patient has the least resistance. Practically it seems to work. This method has given us decidedly better response, as judged by the focal reaction, during the three years it has been used.

In closing, I would make a plea for the use of surgery, not as a last resort, but judiciously, in properly selected cases, after careful medical supervision alone, has failed to achieve a satisfactory result.

✱

ROBERT L. CUNNINGHAM, M.D. (506 Medical Office Building, Los Angeles)—For many years, emphasis was laid upon the early diagnosis of pulmonary tuberculosis and the tendency was to designate as tuberculous conditions which possibly were not really such. This was amply illustrated by the large number of men rejected for service in the army and navy during the war as being tuberculous, who were later found to have some other pathological condition. The prevalence of influenza and kindred infections since 1918 has also given rise to a host of pulmonary conditions which were rare or unrecognized before. These circumstances, together with new refinements in the technique of study and more critical observation, may account for the increasing frequency with which non-tuberculous pulmonary suppurations are now demonstrated and for the many excellent papers appearing upon this subject within the last two or three years. I have read with interest many splendid contributions but can recall none covering the field more adequately than does this presentation by Doctor Pierson.

In this paper, there is material for an extensive monograph. The one paragraph upon foreign bodies in the lung might well be expanded to an interesting chapter, while aspiration, pneumonia or pulmonary embolism offer equally inviting opportunities. Doctor Pierson has shown great restraint, which, I trust, simply means that he intends to treat those questions more fully later.

A diagnostic point, which has seemed to me of value in hinting at intrapulmonary abscess rather than pneumonia or empyema when differentiation has been in question, is the presence of pain referred to the shoulder or acromion process on the affected side. It always makes me suspicious because of the frequency with which I have found it in proven cases of pulmonary abscess but seldom elsewhere.

Under the treatment of abscess, Doctor Pierson does not mention the injection of lipiodol either

through the bronchoscope or by intratracheal instillation. We have noted marked benefit following its use, though in suspected tuberculous abscess, it is to be shunned. Otherwise the therapeutic measures described seem complete. The importance attributed to postural drainage is most gratifying; it is a measure of the greatest importance and one too often neglected. My limited employment of vaccines has given me no enthusiasm for that mode of treatment, but I shall make further trial of it because Doctor Pierson has found it helpful.

Those who suffer from any of these types of pulmonary affection need all of the help available in order to render life tolerable and such work as Doctor Pierson has given us is encouraging and will stimulate us to better efforts of study and more thorough trials of the various methods of treatment indicated in this splendid report.

CLINICAL NOTES, CASE REPORTS AND NEW INSTRUMENTS

THE RECONSTRUCTION OF A COMPLETELY DESTROYED AURICLE*

CASE REPORT

By HARRINGTON B. GRAHAM, M.D.
San Francisco

THE opportunity of reconstructing the auricle occurs so infrequently that the operator seldom has a chance to learn how to improve his technique from personal experience. He must look to the description of the operation by others and so far the errors one may fall into have been very casually dealt with. I am attempting to describe two cases, one of my own, and the other by Dr. George Pierce of San Francisco, quite differently done, both of which could have been improved on by experience.

TECHNIQUE

The important factors involved in the operation are:

1. The tissue used must be in appearance and consistency similar to the original ear.
2. The support must be sufficient to keep the new tissue erect and away from the skull.
3. The new ear should be as thin as it is possible to make it.

If the tissues behind the ear have been uninjured, they are available for the reconstruction and even the hairy parts may be used, as they may be folded back so as to bring the hair onto the posterior surface, where it may be easily kept short. If this tissue is not available, the whole ear must be reconstructed from the skin of the chest, abdomen, or arm, none of which has the appearance of the original ear and can in no wise be as satisfactory as the scalp tissue.

The support may be celluloid, in which case there is a grave chance that it may later on be extruded. Of course, its thinness and malleable quality is a great asset. Personally, I prefer cartilage and have found the nasal septal cartilage satisfactory. The assertion that this is absorbed more frequently than is rib cartilage, has not been found to be true in my nasal plastic work;

* Read before the Pacific Coast Ophthalmological Society, Spokane, Washington, June, 1927.



Third stage. Lower border stitched to lobule

Second stage. Upper border stitched to anterior portion of canal

Fourth stage. Completed ear

either may be absorbed, the determining factor being unknown to me. Gillies has suggested using rib cartilage in order to be able to excavate it so as to provide a support the shape of the former ear, but this does not appeal to me, as it is a difficult task and the shaping might increase the tendency to absorption. It is hard to get a piece of rib cartilage as thin as septal cartilage, and this is a very important factor, as far as the cosmetic appearance of the ear is concerned.

The thinness of the new tissue will depend to a great extent upon the position subcutaneously of the transplant. If it is buried deeply in the tissues, the result must be a thick ear. A superficial position is a difficult one to obtain, but will pay the operator for his pains. Any tissue taken from the arm or chest must be thick, looking like a piece of putty when transplanted. However, time modifies its appearance so that under certain circumstances it may be permissible to use it.

CASE REPORT

My case was injured in a railway accident, the patient losing all but a portion of the lobule of the left ear. The tissues on the scalp were undamaged so that I could use the non-hairy parts for the reconstructed portion. My first step was to transplant a piece of septal cartilage the shape of the sole of a shoe to the subcuticular tissues posterior to the defect. I placed this directly behind the defect instead of above and behind, so that when I brought my tissues forward I did not have enough support to keep them high enough. Any cartilage either from the nose or rib, used to keep the soft tissues up and away from the head, should lie, by preference, in the upper one-third of the completed ear. It is difficult to get enough nasal septal cartilage to fill the demand, so that the lower portion of the lobe may have to be disregarded.

After leaving the cartilage in place for a month, I made a circular incision to the hair line, starting at the upper anterior part of the old ear. This incision was carried to the periosteum and the skin thus outlined, including the cartilage, was raised and folded in such a way as to have the upper border of the ear covered by a continuous layer of skin. The anterior portion was now sewed down to the tragus, and the defect on the scalp remedied by the customary undermining, reduction in size of the opening, and a skin graft taken from the leg, which was brought well up onto the back of the new flap. Were I to do another I should not fold the upper edge back, as in this case, but would use it entire, placing a graft over the whole posterior surface. This flap, if the cartilage were prop-

erly placed, would be quite sufficient to form a new ear without any further addition.

After another month the lower part was incised, carried forward and sewed to the freshened lobule, another graft being placed posteriorly. A few minor operations were done to smooth things out, and an attempt made to stiffen the upper border somewhat by the introduction of celluloid. This should not have been necessary.

Doctor Pierce proceeded quite differently with the reconstruction in his case. He transplanted the rib cartilage, placing it in position subcutaneously through a small incision above the ear. After six weeks a complete incision was made, outlining the new antihelix, which was then raised from the periosteum and a skin graft placed so as to cover the whole denuded surface, with stent in the center. The edge was then sewed back into its place of origin and again freed after ten days. He then brought a tube pedicle flap from the chest up to back of the ear and draped this over the new edge, forming a new helix, which is quite effective. This procedure enlarges the ear so that it is fully as large as the other, and when completed will be nearly the same shape.

The ear that I constructed is considerably smaller than the normal ear, due to the fact that I did not carry my incision high enough on the head, that I folded too much tissue back in order to get a smooth border, and that my cartilage was not placed high enough. All of these errors should be avoided in future work. The assertion of one author that no reconstructed ear is worth while is certainly a false statement, and the time is coming when we will be able to replace a destroyed ear by one which is nearly the equal of the original. Concentrate this work in the hands of a few surgeons and the technique will soon be developed satisfactorily.

490 Post Street.

PARAPHARYNGEAL ABSCESS WITH COMPLICATIONS

CASE REPORT

By ROY F. NELSON, M. D.
Oakland

ABSCESSSES of the deep fascial planes of the neck can give rise to such grave complications that they are always ominous. This case ran the gauntlet of complications except for thrombophlebitis and mediastinitis, which are nearly always fatal, and his recovery seems worthy of record. Endoscopic surgery succeeded after external attack had failed.

The patient was transferred to the bronchoscopic clinic of the department of otolaryngology

at Stanford University Medical School, January 10, 1927, with the following history:

Mr. H., age 48, baker.

Previous Entry, 1922—Diagnosis: acute bronchitis, chronic endocarditis (aortic and mitral), chronic myocarditis (compensated), hypertension, and obesity.

Present Illness—Complained of sore throat, pain along left side of neck for two weeks. Seen in the outpatient dispensary January 3, where an acute pharyngitis and mild tonsillitis accompanied by pain in left side of face and left ear and tenderness in left anterior cervical triangle were treated with local applications and hot gargles. No deep induration was noted externally or in the hypopharynx at that time. Temperature was 101. January 4 and 5, he felt better, but temperature was 102. January 7, he developed an acute generalized arthritis and was hospitalized on the medical service. Throat felt no worse, but pain and tenderness in neck were increasing; temperature, 102-4/10, and a dusky color of the pharyngeal wall was noted. Heart lesions were unchanged and well compensated for. Edema of the postpharyngeal wall, posterior pillars and uvula developed January 8.

Treatment—January 9, the surgical department thought there was a deep cervical abscess at the level of the thyroid cartilage, primarily on the left, and explored this region through an external incision, finding nothing but some edema of the deep tissues around the larynx and esophagus.

January 10, the patient had great dysphagia, respiratory stridor of laryngeal type, temperature 102. Examination by the nose and throat department revealed a marked edema of the posterior and lateral pharyngeal walls, increasing downward and obscuring the larynx except for the epiglottis, which was inflamed and tilted to the right, and the posterior surface of the arytenoids, which were somewhat edematous.

Direct laryngoscopy under local anesthesia showed the edema to be much greater on the left, including the left arytenoid, and greatest near the base of the epiglottis. The left pharyngoepiglottic fold was extremely swollen, fiery-red as compared to the pale edema elsewhere, tense and elastic rather than soggy, and this swelling was displacing the upper laryngeal structures to the right. An incision on the lateral pharyngeal wall about one centimeter above the base of the epiglottis opened an abscess at a depth of a few millimeters, and about an ounce of creamy yellow pus under great pressure was evacuated immediately into a suction tube. Cultures showed hemolytic streptococcus. It was hoped that the respiratory difficulty might soon subside, but two hours later the patient was becoming cyanotic and stuporous, and bedside tracheotomy was done with immediate relief.

Course—The next day, January 11, the arthritis was gone and a soft diet was being taken. Temperature fell to 101 rectal.

January 13, spots of bronchopneumonia appeared and fever and profuse bronchorrhea were present for several days, but pain and dysphagia were completely gone.

January 14, tracheotomy tube was removed.

January 20, temperature was normal and patient went home.

Tracheotomy wound healed slowly (secondary infection with *B. pyocyaneus* intervening), but completely by February 11, and patient returned to work.

COMMENT

Direct laryngoscopy at the first evidence of pharyngeal edema might have brought this serious illness to a satisfactory end without the external operation and before edema of the glottis necessitated tracheotomy, and the pneumonia might have been avoided. The myocardium maintained compensation during several hours of partial asphyxia, but had it failed the tracheotomy

might have been too late. Direct laryngoscopy is indicated in acute or chronic processes affecting the hypopharyngeal region before external attack is attempted.

1904 Franklin Street.

TERATOMA OF MEDIASTINUM*

REMOVAL UNDER NITROUS OXID-OXYGEN
ANESTHESIA

CASE REPORT

By MARY F. KAVANAGH, M. D.

San Francisco

THE following notes were taken from the history record of Mr. G. J., age 19, occupation a tractor driver, who was operated on by Dr. Wallace I. Terry, for removal of a teratoma of the mediastinum at the University of California Hospital.

Family History—The patient's parents are living and well. He has four sisters who are all perfectly healthy. Habits are negative. No history of accidents or of surgical operations. Has had an occasional cold.

Present History—Very sick-looking boy. Height, 5 feet 11 inches; weight, 155 pounds; temperature, 38.8; pulse, 112. For the past year he has had occasional attacks of pleuritic pain, mostly in the right side, occasionally in the left side. Cough began four weeks ago which keeps him awake at night. He raises considerable purulent sputum, but has no hemorrhage and no night sweats.

Physical Examination—Examination of eyes, nose, mouth, and neck negative. No lymph nodes felt anywhere. No cyanosis. No clubbing of fingers. Chest symmetrical and moves equally. No enlarged veins. No bulging. No pulsation. Apex beat cannot be felt. Fremitus increased in right upper lung. On percussion the whole mid-right chest anteriorly shows diminished resonance, which cannot be separated from the right border of the heart—a dullness which may be heart dullness. This heart dullness brings it to the anterior axillary line. Apex beat is not definitely made out. The heart sounds heard over this area are very faint. Sounds at base are louder than anywhere else. No murmurs. Pulse regular and of good quality. Blood pressure: systolic, 125; diastolic, 75. Reflexes normal. There is a slight amount of dullness at the base of the right lung posteriorly and there are a few squeaking râles at both bases.

The blood count showed: hemoglobin, 85 per cent; red blood count, 4,960,000; white blood count, 8650; polymorphonuclears, 75 per cent; small lymphocytes, 20 per cent; large lymphocytes, 4 per cent; transitionals, 1 per cent.

The blood Wassermann was negative.

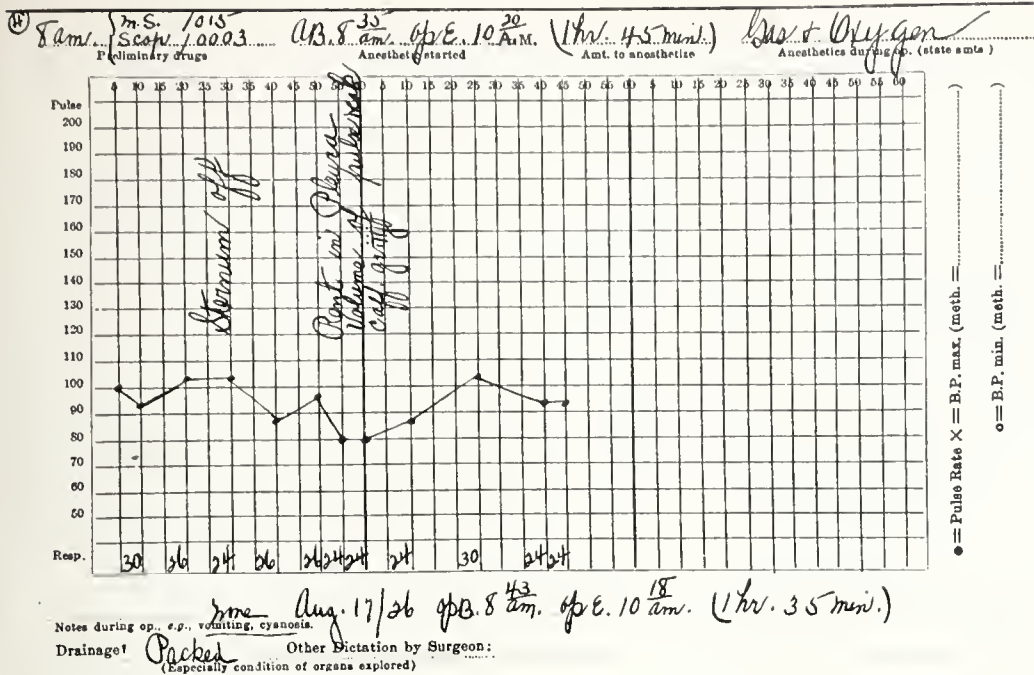
Urine had a trace of albumen.

August 12, 1926—Patient entered the hospital on the medical service with a diagnosis of purient pericarditis and dermoid cyst of the mediastinum having been made.

August 13, 1926—a pericardial tapping was done and 245 cc. of fluid was removed. The temperature dropped to normal after this tapping and an x-ray showed the cardiac shadow smaller than before the paracentesis, but there was no change in the shadow extending out into the lung field. The patient was transferred to the surgical service, and four days later the following operation was performed:

August 17, 1926—Operation: An incision was made from the level of second to fifth rib in the middle of the sternum. The right half of the sternum was resected, exposing a tumor involving the entire medias-

* Read before the Anesthesiology Section of the California Medical Association at its Fifty-Sixth Annual Session, April 25-28, 1927.



tinum. The mass was incised and a large quantity of fluid exuded. Character of the fluid, thick, cloudy, greasy, odorless, and containing particles of sebaceous material which resembled sulphur granules. After exploring the cyst cavity and evacuating the cavity the cyst was found to be a multilocular one. The dermoid and its pedicle were isolated on the posterior lateral wall of the cyst. This was removed and also as much of the cyst mass as possible. During this stage of the operation a small rent was made in the pleura near the lateral extension of the tumor, and a small amount of air was drawn into the pleura by negative pressure. This accident was followed by a more shallow respiration although there was no change in the respiratory rate, and there was also a drop in the pulse rate. Pulse remained regular, but the volume was quite weak. Caffein 3 grains was then given. No cyanosis was present at any time. A further extension of the cyst was found directly posteriorly between the right lung and the pericardium. Manipulation in this area caused the volume of the cyst cavity to be most changeable. The remaining portion of the cyst cavity was lavaged with sterile water and the cyst cavity packed. Patient at the end of the operation was awake, talking, and in very good condition. Pulse was 92; respiration, 24.

Patient had a rather stormy convalescence. Complications and procedures which followed were:

- (a) Postoperative hydropneumothorax.
 - (b) Draining of sternal sinuses.
- August 27, 1926—Ten days after operation thoracentesis was done in the eighth interspace in the posterior axillary line and 40 cc. of fluid obtained.

August 31, 1926—Two weeks after operation patient was up. No evidence of respiratory embarrassment present. Temperature, 37-38; pulse, 100-120; respiration, 20-25.

September 20, 1926—Patient was discharged and instructed to return for a second operation.

November 16, 1926—It was interesting to note the difference in the picture which the patient presented today in comparison to that on his first operation. There had been a wonderful improvement in his general condition and he had gained twenty-one pounds in weight. He looked well and he was happy to know that he was ready for the second operation. Under nitrous oxid and oxygen anesthesia the tumor mass was explored and it was found to be well out on the chest; and by traction the base of the pedicle was exposed. A Peon hemostat was clamped across the base of the tumor cutting off the blood supply. By

this method of traction the mass was finally excised at its base.

November 24, 1926—Eight days later the patient was discharged in very good condition.

I have reported this case because this was the first patient to whom I had given a nitrous oxid and oxygen anesthesia for removal of a tumor of the mediastinum. The Ohio monovalve gas machine was employed. By the usual inhalation method fifteen pounds pressure was used to anesthetize the patient and then raised to twenty-five pounds pressure

just before the right sternum was reflected. Complete surgical anesthesia was maintained throughout the operation. There was no cyanosis at any time. The accompanying anesthetic record shows that the patient's condition while under the anesthetic was very good when the type of operation performed is taken into consideration.

1020 Union Street.

A "Use" for Criminals—Individuals who forfeit their rights to life by committing capital crimes should be compelled to enlist their physical faculties in the cause of science, Dr. W. D. Haines, Cincinnati, believes.

"A Cincinnati surgeon, Dr. W. D. Haines," the Cincinnati Times-Star explains in a current editorial, "suggests that criminals condemned to death or life imprisonment for capital crimes be turned over to hospitals and laboratories for purposes of scientific medical experimentation. In this way, he says, methods might be found for curing cancer and other diseases which are now incurable in their later stages and against which little progress is being made with the field of experimentation limited to rats and other small animals."

"The suggestion," the Times-Star believes, "is worthy of consideration. On first thought it may appear a little barbarous. Probably it will not be put into effect in our time, for we are a sentimental people and there would be a great sob outcry against it.

"In its effect on crime, the establishment of such a custom might have important results. Lax enforcement of the laws and too great activity by pardon boards cause many criminals to think that they can pursue their evil practices in comparative security. Let the idea get around that a man convicted of murder is going to be used as an experiment station for discovering the manners and customs of dreaded disease germs and there would probably be a sudden surge toward virtue among the criminal classes.

"It may well be argued that a man who has forfeited his claim to life through the murder of a fellow-being might be made of some use to society rather than merely to be sent uselessly to the electric chair. Three or four centuries from now Doctor Haines' suggestion may be the general practice in the United States. But then again America may have become quite civilized by that time so that murder will no longer be a general practice in the United States."—Ohio State M. J.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects and discussants invited.

IMPRESSIONS AND PREJUDICES REGARDING OPERATIVE PROCEDURES IN CASES OF PULMONARY TUBERCULOSIS*

Robert A. Peers, Colfax—Patients suffering from active pulmonary tuberculosis or from tuberculosis which has recently been active not infrequently develop complications requiring operative surgical interference. In addition they are subject to the same degree as the non-tuberculous to disease and accident calling for surgical intervention. Sometimes the necessary surgery is distinctly minor; but at other times major surgical operations are indicated. The tuberculosis specialist who over a period of years sees many thousands of tuberculous patients including a great number upon whom surgery has been performed or for whom surgery is indicated and has been suggested, comes in time to entertain opinions of value to the surgical consultant. Likewise he receives and retains impressions, if he is observant and open-minded, which are of great assistance to him in forming an opinion as to the risk or safety of performing operations. Also with the passing of the years he, perhaps, accumulates prejudices against the employment of certain surgical operations in the presence of active, or recently active, tuberculosis. He is able to cite many cases which have come under his observation which support these impressions and prejudices, and he may or may not be able to produce satisfactory statistics supporting them. At any rate these impressions and prejudices remain and influence his opinion when consulted regarding the desirability or advisability of operation in a given case.

It is the intention of the writer to here outline some of his own impressions received during an experience of twenty years in the treatment of tuberculous patients.

It is perhaps trite to remark that patients with active pulmonary tuberculosis or recently active pulmonary tuberculosis are not the best surgical risks. It is self-evident that patients with extensive and acute disease should not be submitted under any circumstances to the shock of surgery unless absolutely imperative. But circumstances do continually arise where minor and major surgery must be considered in patients who are progressing more or less favorably and in whom the outlook, from the tuberculosis point of view, is encouraging. The surgeon then wishes

the opinion of the tuberculosis specialist as to the probable influence of surgery upon the patient's tuberculous lesion.

What will be the effect of a general anesthetic? Should the operation be done under local anesthesia or spinal anesthesia? If a general anesthetic is used what is the anesthetic of choice? Will the wound heal readily? Will the surgical insult to the patient's body increase the activity of the patient's disease or reactivate foci already quiescent? These and other very pertinent questions occur to the mind of the surgeon.

These questions have been put to the writer on numerous occasions by surgeons and by the friends of the patients. The impressions and prejudices left by experience lead the writer to answer as follows:

1. Tuberculous patients other than those much weakened by prolonged active disease stand general anesthesia extremely well. In the hands of a skilled anesthetist the ill effects of ether or chloroform anesthesia are not markedly greater than those seen after their use in the non-tuberculous. This opinion holds particularly for operations below the diaphragm—on the gall bladder, the appendix, the uterus and adnexa, and for operations on the genitourinary tract, including the removal of a tuberculous kidney. The author has had a limited personal experience with spinal anesthesia in tuberculous patients, but his impression is that the presence of pulmonary tuberculosis is not a contraindication against, nor a marked indication for, the use of this form of anesthesia. Personally the writer ordinarily advises gas and oxygen anesthesia where available and otherwise satisfactory, but sees no objection to ether and chloroform where these anesthetics must be used.

2. Operation wounds heal as readily as in the non-tuberculous except:

- (a) Following tonsil removal where the wound frequently heals slowly and, not extremely infrequently, fails to heal.

- (b) Following operation for tuberculosis complications, such as tuberculous peritonitis and enteritis, removal of a tuberculous kidney or in operations on tuberculous bones and joints.

- (c) Operations for removal of anal or rectal fistula.

3. Tuberculous patients do react well following surgical insult, and it is truly remarkable how well they recover with little or no evidence of increased activity or reactivation of quiescence

* See also article in this issue, page 495, by Henry Hoit, M. D., dealing with this subject.

following even major surgical operations, particularly operations below the diaphragm.

4. The author has, with the passing of the years, accumulated certain prejudices regarding surgery as it affects tuberculous persons. He is moved to record two here:

(a) Persons with active tuberculosis, or recently active tuberculosis, should not have operations performed on the pharyngeal or nasopharyngeal structures if such operations can be avoided. This prejudice applies particularly to removal of the tonsils. The prejudice is based upon the very frequent experience of seeing patients whose pulmonary activity has apparently been lighted up and very active and dangerous tuberculosis precipitated by tonsillectomy. In addition, many cases of reactivation of quiescent lesions have been seen following this operation. These accidents have been seen so frequently that the writer always advises against such operations, unless imperative, in all active tuberculous persons and in non-active tuberculous persons until an apparent arrest has been maintained over a period of two or three years.

(b) It is inadvisable to do a radical operation for the elimination and cure of an extensive rectal or anal fistula in a tuberculous person unless such operation is imperative. Such fistulas in patients who are gradually securing an arrest of their tuberculosis will eventually heal in the majority of cases with the recovery of the pulmonary lesions. Most of them are nuisances rather than dangerous complications. Unless they become acutely inflamed, as sometimes happens, they are better left alone.

CONCLUSIONS

1. A decision to operate on a tuberculous patient should depend largely upon the urgency of operation. The presence of active tuberculosis in a patient who is apparently doing well should not prevent surgical intervention where an acute surgical complication of a dangerous nature occurs; nor should it prevent surgical interference where so-called surgical or non-pulmonary tuberculosis requires the intervention of the surgeon. On the other hand, surgery which can be postponed without injury to the patient should be delayed.

2. Tuberculous patients bear general inhalation anesthesia well, and do not show a marked tendency to increased pulmonary activity following its exhibition.

3. Removal of tonsils should be avoided if possible in persons with pulmonary tuberculosis.

4. Radical operations on rectal or anal fistula are to be avoided when possible.

* * *

F. M. Pottenger, Monrovia—I hold opinions very similar to those expressed by Doctor Peers in his paper; however, I am not favorable to the use of ether as an anesthetic for tuberculous

patients. It is undoubtedly more irritating than other general anesthetics and, with its power of penetrating the cells, I think it often exerts a harmful influence upon the tuberculous process. I agree with Doctor Peers that no patient suffering from active tuberculosis should be submitted to operative procedure unless it be absolutely necessary.

Regarding tonsils, I have seen many patients lose their lives because they were unable to recover from the removal of tonsils; and the strange thing is that most of these operations were unnecessary. They were done because of a belief that the tonsil was the source of the cough; or that it contained a focus of infection which was responsible for the pains in the chest and shoulder from which the patient complained; or that this supposed tonsillar infection was the cause of the patient's lowered vitality.

I never submit a patient to a tonsil operation until his tuberculosis has become inactive, unless he has had repeated attacks of tonsillitis, showing definitely that there is a harmful focus which is likely to injure his chances of cure.

I maintain the same attitude toward operations for anal or rectal fistula. It is far better to withhold operation until the disease is arrested.

The fact that the tuberculous patient makes a good recovery from an operation in a great proportion of instances does not indicate that the operation has not done harm. The effects of such procedure are often not visible until some time after the operation has been performed. I would not withhold operation from a patient with active tuberculosis if the operation was essential for removing some condition which seriously impaired the patient's chances of recovery or threatened his life. On the other hand, I would never submit a patient suffering from active tuberculosis to an operation unless I was convinced that the condition which made the operation necessary was more serious than the tuberculosis.

* * *

Louis Boonshaft, San Jose—My opinions are somewhat similar to those of Doctor Peer's and Doctor Pottenger's in reference to surgical interference on the tuberculous patient.

As to the anesthetic used I prefer gas and oxygen anesthesia. Ether anesthesia is somewhat dangerous unless given by an expert.

Nose and throat operations on patients having active disease should be avoided, particularly tonsil operations. I have seen some very disastrous results following tonsil operations on patients with active disease, and also on the so-called arrested cases. These operations should be avoided on an individual having or having had tuberculosis unless it is absolutely necessary.

As for rectal and anal fistula most of these get well as the condition of the patient improves, and

surgery is not indicated unless the condition is very extensive.

Surgery of any type on the tuberculous patient should not be done unless it is imperative.

* * *

George B. Kalb, Monrovia—Doctors Peers, Pottenger, and Boonshaft express the opinion of the majority of the profession who devote their attention to the tuberculous patient, although each of us varies slightly from the rest in his opinions, as his experiences, which aided in forming them, have varied.

With the rest, I believe that no needless operation should be undertaken in the tuberculous, whether active, quiescent, or arrested.

I have seen a quiescent lung reactivated by a pneumonia set up by ether anesthesia, and have never seen it after gas-oxygen, spinal, or local anesthesia. So I always advise against the use of ether.

When the teeth or tonsils are such that they should come out their removal is recommended if the patient's tuberculosis is not too active, but never under a general anesthetic with the exception of gas-oxygen, which may be used when it is not possible to give a local anesthetic.

Under the above rules, patients who have undergone, on my advice, these operations, as well as abdominal sections and various operations about the chest, such as fifteen extrapleural thoracoplasties, have done well.

On the whole it seems to me that tuberculous patients stand operations remarkably well, but with them, as with all others, any operation is accompanied by more or less shock and may be the deciding factor against ultimate recovery. To summarize:

1. Avoid all operations on the tuberculous, unless the danger of operation is greater than that of no operation.

2. When you must operate use local, spinal or gas-oxygen anesthesia and keep up the tuberculosis treatment during convalescence.

Treatment of Pulmonary Tuberculosis—With all that has been said and written regarding tuberculosis, it is amazing how little the average individual, interested in other affairs until tuberculosis becomes a personal matter, knows about the disease, or if he has a fair general knowledge, the difficulty of applying this to his own case becomes apparent unless there is a background based on sound instruction and a practical knowledge acquired by observation and actual practice.

Rest, clean air and proper food constitute the backbone or arch support of tuberculosis therapy, and rest is the keystone of the arch; without rest, physical and mental, all other known measures will fail in the majority of cases of clinical tuberculosis. The patient must be taught the principles of hygienic living, the value of fresh air, sunshine, proper food, rest and exercise, and their proper place. He must be taught to avoid excesses and excitement of every description.

He must be taught the reasons for sleeping alone in a properly ventilated room or porch and to regulate his life to the strictest routine, all of which is a difficult contract to carry out and to keep within the family budget, with the average home facilities, to say nothing of the gratuitous advice of friends or relatives who may be deceived by the patient's apparent appearance of good health. To maintain a routine as outlined demands incessant watchfulness and attention even with a cooperative and intelligent patient, and frequently requires more time than the busy practitioner can spare.

By reason of the chronicity of the disease, home treatment at the proper time makes up the larger part of the consumptive's life. It is not necessary or wise for him to spend his days in the sanatorium unless he has arrived at that stage when permanent bed treatment is required and cannot be given at home. The real value of the sanatorium in early cases is its educational program and so far as it has failed in educating its patients, so far has it failed in the treatment of tuberculosis. While it is true that any educational effort on the part of the nurse or physician makes little if any impression with some, it is certainly fair to assume that the majority of those instructed are better able to care for themselves over a long period of convalescence, and to adjust themselves to a more or less permanent handicap after returning to an industrial life, or the maintenance of a home.

Broadly, three stages of the disease are recognized: minimal, second and third stages; the classification being based on the extent of the involvement and not on the symptoms or the degree of activity. A minimal case may present more evidence of toxicity than one with a whole lung involved and as follows may present a more doubtful prognosis. It is evident therefore that the same prescription is not applicable to two cases presenting substantially the same pathology. Exercise which is a tonic for one may aggravate the symptoms of the other; therefore, before any treatment is adopted the diagnosis must go further than to say tuberculosis is present. It must determine the degree of activity and the extent of the involvement together with a "sizeup" of the patient's general, physical and mental equipment, home surroundings and financial resources. All of these questions may be determined in the home provided there are the proper facilities for observation and care. Lacking home facilities, sanatorium treatment is indicated as the first procedure rather than as a last resort; these patients should be under supervision and a rigid routine before they have become too ill for any form of treatment except terminal care. Early home treatment in the hands of a specialist with an intelligent patient and with proper facilities is undoubtedly preferable in many instances: there is no question that in the hands of a few it has yielded brilliant results. It is not the individual, however, or the isolated case that is under discussion, but the group as a whole which must be considered. . . .

The treatment or mode of life lies between two extremes: absolute bed rest with feeding by the nurse and the use of the bed-pan on the one hand, to merely observation from time to time or a camping trip in the wilderness. An early case in a young adult with fever, rapid pulse and possibly hemorrhage, requires bed rest, prolonged in many instances several months beyond the period of a normal temperature, whereas the chronic fibroid type of many years' duration may live a fairly active life, and unknown as a consumptive among his fellow-workers. . . .

We believe that absolute frankness in talking with a patient accomplishes the best results, even to the point of telling the truth regarding a cavity. His apprehensions are allayed when he learns that all tuberculous processes are followed by cavitation. They are interested in the subject and their attendance equals their attendance at moving pictures.—Ernest B. Emerson, M. D., in *The Boston Medical and Surgical Journal*.

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Editors

Associate Editor for Nevada . . .

Associate Editor for Utah

GEORGE H. KRESS

EMMA W. POPE

HORACE J. BROWN

J. U. GIESY

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EDITORIALS

A NEW METHOD OF MEDICAL LICENSURE

—THE BASIC SCIENCE LAWS OF WIS-

CONSIN, CONNECTICUT, WASH-

INGTON, AND MINNESOTA

In 1920, Doctor O. B. Bock of Sheybogan, Wisconsin, started an agitation in his state in favor of a new method of medical licensure. In 1921, he was instrumental in having a bill covering the essentials of the present Wisconsin basic science law for practitioners of the healing art, introduced into the Wisconsin legislature. It did not go to passage that year; and in 1923 it again met with defeat. But in 1925 the measure became a law, with only four dissenting votes in the legislature! The act went into effect on June 12, 1925.

Wisconsin's interest in such a measure arose largely from the activity of chiropractors, who in 1915 secured a law in Wisconsin, whereby they could practice unmolested, provided they did not hold themselves out before the public as licensed or registered physicians; about two hundred having entered the state every year to take up their practice.

Seventeen days after Wisconsin secured its law the state of Connecticut placed a similar act on its statute books. Wisconsin and Connecticut acted independently and without conference in securing their respective laws, and were led to their action because of quite different causes. In Connecticut a "diploma mill" scandal had arisen in connection with one of the cultist boards, and after the exposé the state had risen in its wrath,

had instituted a house cleaning and the Connecticut basic science law was the result. As a result of the investigation, in which the state medical society, the governor, a grand jury and lay citizens all lent their aid, a total of 168 licenses were revoked, about three-fourths of this number being held by persons who were practicing in other states.

In the bill it was stated that "The examination shall be so conducted as not to discriminate against the particular views of any bona fide organization, sect or school, as to any remedies, or treatment or any system of therapeutics."

What is the essence of a basic science law, and why did its acceptance seem a rational method of procedure for the states which have adopted it since the first of such laws was passed in 1925?

A basic science law is founded on the proposition that a patient who consults a practitioner of the healing art may be suffering from a disease in which serious danger to health and life may be involved. The citizen who is such a patient has a right to expect that the state will protect him from incompetent advice; or at least that the state will safeguard his health and life interests by insisting that all practitioners of the healing art, no matter to what so-called school of healing belonging, should have those certain minimum qualifications in preliminary education and in professional training, that would make each such practitioner possess that fair amount of technical knowledge which should be expected and demanded of any man holding himself before the public as competent to treat injury or disease by this, that, or the other methods.

The fundamental or primary subjects having to do with the practice of the healing art are construed in most of these basic science laws, to include: anatomy, physiology, chemistry, bacteriology, pathology, diagnosis, and hygiene.

These are the subjects that are usually called the basic sciences. It is worthy of note that not one of these subjects has to do with methods of healing, but each is construed to be very proper knowledge which every practitioner who wishes to claim ability to treat injury or disease by any method whatsoever, should possess.

In these basic science acts there is no definition of the "practice of medicine" but there is a definition of the "practice of the healing art," somewhat as follows: "For the purposes of this act, any license authorizing the licensee to offer or undertake to diagnose, treat, operate on or prescribe for any human pain, injury, disease, deformity or physical or mental condition is a license to practice the healing art."

This definition is purposely made almost all-inclusive, but the various bills exempt by special sections, such groups as dentists, midwives, nurses, optometrists, and religious healers.

It is usually stipulated that the boards of examiners shall consist of three to five members, usually laymen, sometimes professors or teachers

in liberal arts departments of colleges or universities within the state, and so on. The board is given authority to employ assistants to help carry on the examinations.

In Wisconsin the basic science board "shall consist of three lay educators, none of whom shall be on the faculty of any department teaching methods of treating the sick."

In Connecticut the first board appointed by the governor had as one of its members the professor of philosophy at Yale University, as the second an ex-judge, and as the third the chief executive of a large and prosperous manufacturing company. Dr. R. L. Rowley, secretary of the Connecticut Medical Examining Board, states that the basic science board conceived "its intended function as a board of elimination, to be a coarse sieve through which applicants for a license to practice the healing art must first pass with consequent elimination of the obviously unfit." A certificate from this basic science board is prerequisite to examination by any one of the six separate Connecticut medical, homeopathic, eclectic, osteopathic, chiropractic, or naturopathic boards.

In Washington the board of five members comes from the faculties of the University of Washington or Washington State College.

In Minnesota the board consists of professors from any university or college in Minnesota.

* * *

Provisions are made in these acts as regards: Organization of the boards, fees to be paid by applicants, examinations and the passing standards required, requirements for a certificate, reciprocity, appeal to the courts from the board's decision, illegal certificates, fees paid unauthorized practitioners recoverable, enforcement, exceptions, saving clause, and so on.

On the subject of the requirements which must be met by anyone who would take a basic science examination, the following could be quoted: "No certificate shall be issued by the state board of examiners in the basic sciences unless the person applying for certificate submits evidence satisfactory to the board: (1) that he is not less than twenty-one years of age; (2) that he is a person of good moral character; (3) that he was graduated by an accredited high school or school of similar grade, or possessed educational qualifications equivalent to those required for graduation by such an accredited high school before he began the study of the healing arts, and (4) that he has a comprehensive knowledge of the basic sciences as shown by passing the examination given by the board, as by this act required.

"Comment: No evidence is required of the applicant of the extent and nature of his knowledge of the basic sciences. These are to be determined by the board of examination. The professional licensing board to which the applicant must subsequently apply for his license to practice is to be at liberty, it is proposed, to accept the findings of the state board of examiners in the basic sciences with respect to the proficiency of the applicant in those sciences, or to re-

examine the applicant in those sciences on its own account."

* * *

From the foregoing it is seen that the medical, osteopathic, chiropractic and other examining boards existing in a state are not wiped out of existence but are permitted to carry on in line with the preceding paragraph.

In similar manner, no practitioner of the healing art licensed in a state at the time of the enactment of a basic science law is deprived of any of his previous rights to practice.

* * *

A very interesting section is that which proposes to deal with a new type of penalty for the unauthorized practitioners. It reads: "Any money paid out by any person as compensation for services rendered in the practice of the healing art or any branch thereof to any person not validly licensed to practice such healing art or branch, when the payor did not know that such person was not validly licensed so to practice, may be recovered by the person who had paid such money by a suit instituted within two years from the date when such fee or compensation was paid.

"Comment: One who practices the healing art or any branch thereof unlawfully cannot now obtain the aid of the courts in collecting money for his unlawful act. This section proposes merely to permit one who has innocently paid money for such unlawful services to recover it by suit."

* * *

From what has been here written, it is noted that these basic science laws in these different states show quite a different method of approach to the whole subject of licensure of practitioners of the healing art than has been the vogue in the past. These basic science laws are startling in this pronounced variation from established methods, and startling also in their simplicity and logic.

That four states in two years should have passed such laws, and that other states have such proposed laws under consideration, should make the whole subject of interest to all physicians who desire to keep in touch with legislative matters having to do with the healing profession.

PULMOTORS AND LUNG MOTORS SHOULD BE DISCARDED—OXYGEN-CARBON DIOXIDE TREATMENT MORE EFFICIENT

The sixth annual convention of the National Association of Police and Fire Surgeons and Medical Directors of Civil Service Commissions of the United States was held in Los Angeles, September 8, 9, and 10. A discussion in which great interest was taken was led by Drs. Daniel J. Donovan and Harry M. Archer, respective heads of the police and fire departments of New York City. The discussion dealt with resuscitation methods. These surgeons unhesitatingly condemned devices such as the pulmotor and lungmotor as being mechanical aids that could not be depended upon to consistently deliver air or gas mixtures to unconscious moribund persons; and made the point, in their opinion, that apparatus

of such type had been actually the major responsible cause of death in many instances.

These statements should be of very great interest because in recent years positive pressure apparatus such as the lungmotor and pulmotor have received such great newspaper publicity that emergency police or fire surgeons who do not resort to the use of such are apt to come in for severe criticism from both the press and the laity. One of our California police surgeons, who believed this type of apparatus quite dangerous, told of a recent experience in which the newspapers of his city had criticized him sharply for not using such apparatus.

It is encouraging to know that the oxygen-carbon dioxide treatment of carbon monoxide poisoning has the endorsement of a commission that made an investigation of this subject, and which has on its roll the names of such men as Cannon, Drinker, Henderson and Edsall of Harvard, Haggard of Yale, and Sayers of the U. S. Bureau of Mines.

That commission recommended the discontinuance of apparatus of lungmotor and pulmotor type, urged the encouragement of the use of the prone pressure method of artificial respiration, and suggested that special apparatus of certain standard types be used to secure an inhalation of 95 per cent of oxygen and 5 per cent of carbon dioxide. The three types mentioned as being up to proper standard were the H.-H. Inhalator, the Industro-Oxygenator Universal Model, and the Atmos Inhalator.

This comparatively new treatment which was devised by Doctor Henderson and Doctor Haggard of Yale University depends upon their recognition of the fact "that for every physiological reason, the immediate necessity in gas poisoning is a free flow of oxygen into the pulmonary alveoli, and the mixed oxygen with 5 per cent of carbon dioxide, thus utilizing the stimulating effect of carbon dioxide on breathing in order to get a high concentration of oxygen in the lungs."

The method referred to is being used by many organizations throughout the United States and should be given serious consideration by all establishments or communities which still adhere to the positive pressure ventilation apparatus, such as the pulmotor or lungmotor.

* * *

In another interesting discussion, Doctor Donovan, chief surgeon of the New York City police department, stated that his staff had blood typed more than 1000 policemen, and that a policeman of proper blood type, by motorcycle or auto, could be brought within thirty minutes to any hospital where a blood transfusion was needed for a policeman or a member of his family. In this manner a group of men with the best standard of blood content and of proper type, was displacing the professional blood donors whose employment on pay, spelled danger through test delay and low grade blood, even though of type. Such men, whose blood types were of record, could, if they desired, volunteer their blood to help save life in civil practice.

A third topic was the presentation of photographs of a beautiful convalescent and recreation home on the Hudson for members of the police department and their families. The fireproof building and the cottages and pavilions were erected with funds from the members of the department. The thought is of suggestive value to those who believe that state medical associations could advantageously consider such an activity for the members of their own guilds.

SHOULD INJURED COUNTY EMPLOYEES RECEIVE GRATUITOUS PROFESSIONAL SERVICES FROM NON-SALARIED ATTENDING COUNTY HOSPITAL STAFF MEN?

The "Workmen's Compensation Insurance and Safety Act" of California provides that almost all workmen and workwomen who are injured in connection with their employment shall receive proper medical and surgical care, as well as compensation for physical inability to return to work, such compensation commencing the eighth day after the injury complained of.

Section 9 of the act stipulates that "where liability for compensation under this act exists, such compensation shall be furnished or paid by the employer and be as provided in the following schedule."

The language of the act specifically states "the employer" shall pay. Employer may mean a private citizen, a form of company or corporation, a city, a county, the state.

* * *

If private citizens who are employers are stringently held to the letter of the law and are made to pay for medical and surgical services on the fee table basis established by the California Industrial Accident Commission, it would seem only fair and proper that cities and counties should be made to live up to the same rule, for these community entities are in no manner exempted from the provisions of the Workmen's Compensation, Insurance and Safety Act.

* * *

If the supervisors of a county which maintains a county hospital wish to rule that the superintendent of the institution, in case he is a licensed practitioner, or the paid resident or paid attending staff members, shall give medical and surgical care to injured county employees coming under the purview of the industrial injury act, that would appear to be within their rights, if the stipulation of those additional duties was included in the understanding which the supervisors had with these salaried physicians.

However, when a county, and especially a wealthy county, expects or demands of the members of an attending staff, who offer to give their services without pay to the county poor who are in such a county hospital, that such attending staff members shall give medical and surgical services to injured county employees without that pay which the industrial accident act states that every physician who gives professional service to an injured employee has a right to demand, then such a county is taking an unfair advantage of such hospital staff members of our profession.

There is a principle involved in this that has to do with honest and fair dealing, as stipulated by the laws of California, and that principle far transcends the amounts of money which would be received as fees in the cases noted. We have heard the subject discussed by many medical men who are familiar with the conditions just pointed out, and have yet to hear sound reasons why a city or county should not pay the fees authorized by the Industrial Accident Commission. It is to be hoped that the heads of county hospitals will not be backward in calling the attention of boards of supervisors to the legal and ethical injustices which come into operation when non-salaried attending staff men are called upon to give such gratuitous services. The non-pay procedure mentioned, wherever in vogue in California, should be discontinued. It is not in accordance with the law, and is an imposition on generous members of the medical profession.

THE BOARDS OF HEALTH AND MEDICAL EXAMINERS—THEIR RELATION IN THE NEW EXECUTIVE DEPARTMENTS OF THE STATE OF CALIFORNIA

Citizens who kept in touch with the newspaper accounts of the proceedings of the biennial session of the California Legislature which took place in the first four months of this year were aware that marked changes in the executive organizations of the state were provided by laws then enacted; with still further changes in view when the 1929 legislature convenes.

Only so recently as January 1, 1919, California had the high total of 112 independent agencies, responsible only to the Governor, to give expression to the executive branch of our State Government. In a chart brought out by the California State Printing Office, the two of the 112 blocks thereon indicated, in which the medical profession had a special or personal interest were those marked for the Board of Health and the Board of Medical Examiners.

* * *

Between January 1, 1919, and July 29, 1927, a change was brought about in the executive divisions of our commonwealth. The system of 112 independent agencies was changed so that five newly instituted departments—education, institutions, finance, public works, and agriculture—absorbed or brought under the supervision of those departments, about fifty-eight of the independent agencies already referred to, leaving only fifty-four independent agencies directly responsible to the Governor.

* * *

On July 29, 1927, Governor Young's plan of a cabinet known as the Governor's Council, and consisting of the heads of nine departments, came into being. This was brought about through legislation passed by the California Legislature of the current year. In that plan the nine departments—institutions, industrial relations, natural resources, education, finance, public works, agriculture, public health, and social welfare—absorbed of the 112 independent state agencies

responsible only to the Governor, all but thirty-eight, one of these thirty-eight being our present Board of Medical Examiners, which still functions as in previous years; while one of the newly-created departments was that of public health.

On one of the charts depicting these changes the Department of Public Health is listed with one block showing the State Board of Health and four empty blocks attached thereto, the contents of which are still to be determined.

At the present time, the activities of the California Department of Public Health include the following fourteen divisions: child hygiene, nurses registration, bureau of tuberculosis, sanitary engineering, sanitary inspection, cannery inspection, pure food and drug laboratory, hygienic laboratory, crippled children, vital statistics, epidemiology, public health nursing, prevention of malaria, and social hygiene.

The fourteen divisions just enumerated at a future date will be joined into probably three or four groups, with group names still to be determined.

* * *

The head of the new Public Health Department, known as the Director of Public Health, is appointed by the Governor and holds office at the Governor's pleasure. Governor Young has appointed as director of the department, Walter M. Dickie, M. D., late secretary of the Board of Health, a choice that meets with the generous commendation of the medical profession, so far as we know. As director, Doctor Dickie is a member of the Governor's cabinet or council and is the executive officer of the department and of the Board of Health.

* * *

Interesting as are the foregoing changes, the end, however, is not yet. For in 1929, when the next legislature convenes, it is proposed to carry on the regrouping, or consolidations, so that in place of the 112 California agencies of 1919 there shall be retained but eleven of the independent agencies, responsible only to the Governor, the remainder being absorbed by eleven instead of the nine departments of present date—a professional standards department (which would include the present sixteen different examining boards, the Medical Board among others) and a commerce department, being the two new department additions.

These changes in methods of executive organization in California are almost radical, but on study seem to present many advantages and should enable the agencies which existed independently in the days gone by to do more efficient work than ever before. These eleven department heads or directors who form the Governor's Council should also be in position to aid him greatly in the important and very responsible duties which come to the executive head of so vast and wealthy a domain as the state of California.

Because the Public Health Department and the Board of Medical Examiners are executive departments and agencies in which organized medi-

cine is vitally interested it seemed desirable that the editors should give to members of the California Medical Association this brief survey of the present and prospective relationships of those boards.

THE LURE OF MEDICAL HISTORY

The publication in a recent number of *Science* of an address by Prof. E. B. Krumbhaar before the Piersol Anatomical Society of the University of Pennsylvania brings home to us here in California the opportunities that lie before us and of which as yet we are making little use. Or to put it in a more tempting manner, it reminds us of the advantages for relaxation and enjoyment which we are overlooking.

Professor Krumbhaar's address is a plea for the recognition that the perusal of medical history may be justified by arguments both of a practical and of what for want of a better term we may call a cultural nature. As he says:

"With the inroads now being made on legitimate medicine by osteopathy, chiropraxis and the various isms, any one of us should be interested in learning about the quackery and superstitions of previous ages—yes, and having learned about them, be better able to cope with what later might become a very practical matter directly affecting the fatness of our own pocketbooks."

And in not so pragmatic a strain, but still on earth enough for the most practical of us, he quotes Osler:

"By the historical method alone can many problems in medicine be approached profitably. For example, the student who dates his knowledge of tuberculosis from Koch may have a very correct, but a very incomplete appreciation of the subject."

Personal pride in the cultural tone of our profession should also lead us to avoid the reproach that he suggests when he warns us that the name Pasteur should mean more to us than the prefix of a method of sterilization or that of Liebig more than an "ad for meat extract."

How then are we to begin, or perhaps renew, our acquaintance with the subject of medical history? Professor Krumbhaar suggests that we follow Emerson's advice and "take hold anywhere." Garrison's list of curiosities is available to tempt the most jaded interest.

"The gold-headed cane, Saint Anthony's fire, the red and white stripes on the barber's pole, the duels of physicians, the blood suckers who attended duelists in the eighteenth century in order to suck their wounds, the wound drinks of the Middle Ages, the purgative inks of the Arabians, the anodyn necklaces, quassia and antimony cups of the past as compared with the medicated milks, iodated foods and diuretic wines of the moderns, cupping and leeching, the seton and the moxa, the sympathetic powder for healing wounds at a distance, the use of the bare foot as a thermometer in the Middle Ages, the introduction of Dover's powder by a buccaneer, the statues erected to the memory of great physicians and the streets named after them, the quacks of the eighteenth century, the medical graduation ceremony, the use of bo-

tanical gardens to teach materia medica, hex-doctoring in Pennsylvania, the medical superstitions and folk-ways of different races—any one of these subjects, taken at random as a starting point and closely studied, will throw you into the full current of medical history."

The desire soon will come to fuse these isolated fragments into a more comprehensive survey of the development of medical knowledge, and for this are available such readable and reasonably brief outlines as Osler's "Evolution of Modern Medicine" or Garrison's "History of Medicine."

As has been said before, these remarks of Professor Krumbhaar should be of especial interest to us, for San Francisco possesses one of the finest historical collections in this country. The historical section of the Lane Medical Library offers not merely books about medical history, but the very books that constitute in themselves the progressive steps in medical history. A first-hand contact is possible to us that is denied to most who wish to interest themselves in the subject. Not many of us perhaps can hope to explore deeply into "*De humani corporis fabrica*," but the beauty of its woodcuts is enough to hold one fascinated before the still fresh crispness of its magnificently printed pages. In this humble way at least we may associate with the great men of the past in the only part of their personality that persists today, their contemporary printed thought.

The scope of the historical section of the Lane Medical Library has been described in an earlier number of this journal.¹ Its examples cover the entire period of western medicine from the beginning of printing to the historical studies of the present day. Oriental medicine, especially Arabian, is represented by numerous manuscripts. Moreover the physical surroundings that are so necessary to the use and enjoyment of a collection of books are found in its large special reading room and stacks which occupy the entire fourth floor of the library building.

The historical volumes of Lane Library can be read by all members of the California Medical Association or visiting physicians. Those who desire to remove these volumes from the library must either be associated with Stanford University or be subscribing members.

Professor Krumbhaar's address has suggested that attention should be called to these opportunities which lie before us, and it is proposed that in CALIFORNIA AND WESTERN MEDICINE, each month a short summary will appear describing some noteworthy name in medical history with a brief description of those of his works which are available at Lane Library. No attempt at biographical or descriptive details is contemplated, no preconceived plan will be followed. As Emerson suggests, we shall take hold anywhere, tell you very little, except what your opportunity is, and hope that your visit to the library will accomplish our purpose. And this is that your enjoyment of medical history may be founded not on books about books, but on the stones themselves of which the edifice of modern medicine is built.

1. California and Western Medicine, 1925, xxiii, 576.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Endocrinology

Diabetes and Acromegaly—The conception of the interrelationship of the endocrine organs has been convincingly developed by Eppinger, Falta, Rudinger, Cushing, and many others, although the precise relationships are as yet but poorly understood. As an illustration of the frequent dependency of one hormonopoietic structure on the proper function of another, the presence of a persistent hyperglycemia and glycosuria in patients suffering from acromegaly may be cited. It is usually and probably correctly assumed that a hyperglycemia, if constant, results *per se* from an insufficient supply of insulin, and this in turn necessitates the hypothesis of a diminished activity of the islet tissue of the pancreas. Such a condition, in the great majority of cases, results directly from pathological conditions existing in the pancreas itself. There are occasions, however, when the metabolism of carbohydrates varies from the normal, not because of primary pancreatic insufficiency, but secondarily as a result of disease of other endocrine structures as, for example, the pituitary body.

Cushing observed several years ago that a nearly total pancreatectomy appeared to activate posterior lobe secretion and that animals with a pituitary deficiency seemed to tolerate the loss of the major portion of the pancreas better than normal animals would have done. Furthermore he learned that manipulation of the hypophysis sometimes caused a transient hyperglycemia with glycosuria. He investigated the sugar tolerance of partially hypophysectomized animals and found that the temporary lowered assimilation limit for carbohydrates ultimately became raised. This increased tolerance for the ingestion of sugar could be overcome by coincidental administration of either posterior lobe extract or of thyroid extract. He therefore ascribed these symptoms of pituitary deficiency to an impaired oxidizing or metabolizing capacity of the body from the loss of posterior lobe extract with a resultant transformation and storage of sugar as fat.

On the other hand, it is now well known that a symptom complex not distinguishable from diabetes mellitus accompanies acromegaly in about 40 per cent of the cases. Colwell¹ has in a comprehensive manner recently reviewed the literature on this subject in an attempt to correlate the facts concerning the rôle of the hypophysis in carbohydrate metabolism. His investigations brought forth the fact that, contrary to the usual idea, there is no reason to believe that a distinct hypophyseal diabetes occurs, which is different from pancreatic diabetes, although the "diabetes

of acromegaly differs from the ordinary diabetes without hypophyseal disease in that it is capable of undergoing spontaneous temporary or permanent recovery." However, while it exists, the diabetes mellitus which so frequently accompanies acromegaly resembles ordinary diabetes mellitus in all respects. Following Cushing's idea that a condition of hypopituitarism brings about an impairment of the oxidizing capacity of the body, the hyperglycemia which may be induced by overactivity of the hypophysis "is ordinarily thought to be due to an excessive rate of glycogenolysis which temporarily supplies glucose at a rate which exceeds the normal ability of the organism to dispose of it. The resulting hyperglycemia and glycosuria exist as long as the stimulus to increased glycogenolysis endures." Thus such a condition would result from an essentially different mechanism than the one producing the hyperglycemia in diabetes mellitus, although the hyperglycemia in both are due to a glucose supply rate exceeding the glucose utilization rate. As Colwell points out, however, it is possible that these two identical conditions may be of similar origin and that the hyperglycemia of acromegaly may result from a temporary functional impairment of the insulin-producing tissue.

As is also suggested by Colwell, "the hypophysis may be without significance in the field of carbohydrate metabolism as a gland of internal secretion," but that important nerve centers or pathways situated near it and which are concerned in the control of insulin secretion are so affected by conditions existing in the pituitary body as to bring about unusual conditions in carbohydrate metabolism. This, however, is difficult to reconcile, not only with the increased glucose tolerance produced by the functionally deficient hypophysis—which being certainly no larger than normal can produce no untoward stimulation on adjacent nerve paths—but also with the various pituitary diseases associated with diabetes, in which the pituitary body has been found to be diminished in size. It is unfortunate that no studies of glucose metabolism were made by Smith² in his recent article on the disabilities caused by hypophysectomy in the rat. He showed that the syndrome usually ascribed to an insufficient pituitary secretion characterized by adiposity and genital undergrowth is in reality (as suggested by Camus and Roussy, Aschner, and others) the result of injury to the hypothalamic region. Had it been possible for him to show an increased glucose tolerance in his rats, definite experimental evidence as to the effect of the stimulation of structures adjacent to the hypophysis on carbohydrate metabolism would have been produced. Until work of this

1. Colwell, A. R.: *Medicine*, 1927, 6, pp. 1-40.

2. Smith, P. E.: *J. A. M. A.*, 1927, 88, pp. 158-60.

character is carried out, showing definitely the effect of stimulation of the structures adjacent to the pituitary body on glucose metabolism, the pertinent fact that a diabetic syndrome indistinguishable from true diabetes mellitus accompanies a hyperactivity of the hypophysis (acromegaly) in about 40 per cent of the cases should be ascribed to the interrelationship of the hypophysis and the pancreas.

H. CLARE SHEPARDSON,
San Francisco.

Proctology

Hemorrhoids—The injection treatment of hemorrhoids had a rather shady beginning, and it seems never to have been able to attain to the first rank of repute. One is tempted to be a trifle apologetic on introducing the subject.

It is not easy correctly to ascertain results of any therapeutic procedure until a great mass of experience has been accumulated. In the few decades of its use the injection method has been thoroughly tried out here and there by reliable men, and their testimony can be had. Boas¹ writes of ten years' experience with it, and in a conservative manner expresses his satisfaction.

A special point that he brings out is that the injection method is to be regarded as just as radical a method as any form of surgical treatment. There is no more, and no less, tendency for recurrence. Men with the widest experience probably best realize that, the Whitehead operation excluded, no treatment for hemorrhoids can be considered as truly radical and a guarantee against recurrence. By the injection method all hemorrhoids present can be completely obliterated. Excision, clamp and cautery, or ligation accomplish nothing more.

However, the indication, contraindications and technique are of vital importance. Unless one has full knowledge of these matters the surgeon is possibly less justified in using the injection method than in operating. But properly applied, the injection treatment seems to give good results and will probably increase in popularity.

GORDON F. HELSLEY,
San Francisco.

Cancer

Encouragements in the Treatment of Cancer—"There is no cure in sight for malignant disease and there is little likelihood of one until after the cause is settled. Before any headway was made in the control of most diseases that are under control, the cause has first been settled and not until then did rational attack begin."

Now and then, and sometimes in supposedly responsible quarters, unfortunate statements are made about various phases of cancer. The above quotation is one of these, mainly because it is untrue. Cancer can be likened to an Easter chick, easily done for, if roughly handled in its early development. The malignant and deadly attributes of cancer are easily comparable to the

methods of the rattlesnake. He will kill unless the trick is done to him first, and it usually requires a man to do it. Pussyfooting with either a cancer or a rattlesnake accomplishes only one thing—it makes them more effectively destructive. But there is nothing more submissive or yielding, as far as treatment is concerned, than cancer if it is utterly destroyed early.

Does the physician from whose article I have quoted at the head of this page mean to imply that no case of cancer ever recovers when treated by the recognized methods known today? Perish the thought, for it, too, is untrue. Many physicians, and through them also the public, seem purposely to have developed a psychological twist that, I fear, has grown out of the prevailing fashionable pessimism, when they think or hear or tell of the possibility of even trying to treat cancer successfully. Two of the greatest scourges of the race (syphilis and malaria) were cured long before laboratory workers brought their training and scientific imagination into play and superbly revealed their cause.

Cancer seems the great problem that it is today mainly because it has almost been left alone in its evil mischief. So many of the hydra-headed monsters that have been responsible for the ills of mankind have been beaten back from the front line where they had heretofore destroyed comfort and invited death, that the subject of cancer seems and looks much larger by way of contrast than it formerly did. Many of these diseases had been successfully treated for centuries before their causes were known, and when these were finally discovered it was usually found unnecessary to depart from the treatment that had grown with the race to combat it. It is also interesting to remember that the death rate which obtained in these then uncontrolled diseases killed more of their victims than so far has ever been true in the mortality from cancer.

The available means for the successful management of cancer will prevent its ever becoming the menace that present-day treatment pessimists are prone to insist that it will. In very early cancer, especially of the skin and above the collar bone, practically all will recover following thorough operation with the hot or cold knife, radium, and the x-ray. In the moderately advanced cases of accessible cancer in other parts of the body 50 per cent will recover, and in the advanced patients who are usually assumed to be in the terminal or hopeless stages of the disease, if they have good hearts and kidneys, fully 20 per cent, under present known methods of management, will live after treatment, normal lives over the five-year period.

Many members of the medical profession seem ready to change or at least modify their formerly hopeless attitude regarding the possibility of successfully doing anything to alter our present depressing mortality statistics in cancer. This had to come because the present situation is not only irrational and absurd, but it is also indefensible.

Our treatment of cancer must have as its basis the prevention of the further development of the disease in a given patient. This is certainly more

1. Boas: *Deutsche Med. Wochens.*, 1927, No. 13.

rational and what we all hope will finally be the modern vision of the need of the hour in our attitude toward the management of the cancer patient. Such a view will aid the medical profession, and through it the public, to scrape off some of the scientific mold that at present envelops the whole subject of investigation and treatment. In addition, and of paramount importance, it emphasizes that we neglect to study and familiarize ourselves with and to utilize what we now have and know to be of proven value for both the cure and palliation of this only apparently increasing menace to the race.

JAMES F. PERCY,
Los Angeles.

Neuropsychiatry

Extramural Psychiatry—Formerly, physicians specializing in mental diseases led mainly somewhat monkish existences in asylums for the insane, largely out of touch with the general medical profession.

Among the profound changes which have affected medicine, psychiatry has gained justified recognition as a legitimate and necessary branch of both institution and private practice.

Only a small proportion of people suffering from mental abnormalities which distress them and impair or destroy their usefulness, are committed to state hospitals, or need to be.

Nevertheless since the restless and ever changing life of our times is continually imposing heavier burdens, we find an increasing number of individuals mentally inadequate to adapt themselves to its requirements.

The experiences of the great war, the intensive study of child development and the causes of delinquency and crime and the pandemic distribution of infectious diseases of the nervous system, not rarely leaving behind aberrations of the psyche, have taught us the need of attacking the problem at its source.

More practical familiarity with the phenomena of mind than heretofore attained is desirable for the general practitioner, upon whom falls the responsibility of first detecting—or at least suspecting—the abnormal, both in body and in mind.

It should be possible for him to gain a certain psychiatric background, for which he will find use, among the functionally nervous, drug-taking, defective, constitutionally inferior and half-insane people with whom he comes into contact as well as in better understanding cerebral symptoms in somatic disease.

Should all physicians acquire the habit of noting the mental make-up and peculiarities of their patients, as well as points in the family history bearing on such cases, our psychiatric knowledge and our ability to deal with many social problems would be much advanced.

In densely populated regions skilled psychiatric advice is generally available but throughout great areas the family physician is the sole reliance until commitment to an institution is secured. If in the

presence of a psychosis he acts with sense and prudence he can well meet any emergency.

While it is axiomatic that the really insane can best be handled in institutions, there is nearly always a period when the diagnosis is in doubt; also arrangements for transfer occupy time.

Though nothing can replace actual experience, all physicians should take to heart the following facts:

Insanity is a relative rather than an actual conception and is determined upon social rather than scientific grounds, that is upon the ability of the individual to sustain himself and to live in the community without being a danger or a nuisance.

Mental diseases run a course, not of days or weeks, but of months and years, and provision for the care of mental patients should be made accordingly.

Prognosis as to recovery depends entirely upon the nature of the disease.

Delirious and confusional states arising from intoxication, infection and exhaustion as well as symptomatic psychoses have a prognosis favorable in proportion to the removability or curability of the underlying cause.

Manic-depressive attacks tend to recover, but are likely to recur later.

Dementia precox tends to progressive mental enfeeblement, but there may be remissions for a long time during which the patient may appear to have recovered.

General paresis and the organic psychoses are of altogether unfavorable prognosis, though here also remissions for long periods may occur.

Epileptic psychoses are progressive and of poor outlook.

All acute mental cases need watching day and night. In depressed patients the danger of suicide is ever at hand and never to be disregarded.

There is no greater error than the idea that the mentally disturbed need constant diversion, change of scene, etc.

Nothing is of more value in reducing excitement than rest in bed away from visitors and all irritating influences, combined with judicious hydrotherapy. The tepid pack is always available and the family bath tub can give a fair substitute for the continuous bath of the hospital.

Of drugs, bromides, while mainly too weak, have some value in adequate doses long continued. Chloral, trional, veronal, medinal, luminal, allonal, etc., act well in many cases, but hypnotics should be used as little as possible. Hyoscin is a two-edged sword of great value in manic excitement in the robust, but depressant and sometimes delirifacient. It usually acts best combined with morphin. It is absolutely contraindicated in alcoholics, in whom it may cause sudden death.

The most efficient ally is an experienced nurse. A good asylum "attendant" is of infinitely greater value than the best trained nurse without psychiatric experience.

Women nurses have usually a soothing effect upon

male patients, prejudice against their use in ordinary cases having about disappeared.

However, some men are too erotic, violent or dangerous to be handled by women.

The really insane person should generally be removed as soon as possible to an institution, since home care is seldom a success. This, however, does not necessarily apply to senile demented, many of whom can be managed with safety at home.

CHARLES LEWIS ALLEN,
Los Angeles.

Syphilology

The Origin of Syphilis Is Still Much Debated—The recognition of the relation of skin manifestations to the primary lesion happened to occur at about the time of the discovery of America by Columbus. The various European countries for a while were content to name the disease after each other, but soon they collectively transferred the blame to the Americas, and so inaugurated a debate that has occasionally become most bitter.

We will consider some of the data supporting the pre-Columbian origin of syphilis. Thousands of leprosariums in existence for centuries in Europe were closed when "lepra" was seen to be syphilis early in 1500. The "lepra" of the Middle Ages had a degree of contagion unknown to leprosy of our day. That "lepra" followed intercourse with an infected woman may be seen from "*lepra ex coitu cum foeda muliere*," Bernard de Gordon, about 1290 A. D. or, "*Ille qui concubuit cum muliere, cum qua coivit leprosus, puncturas inter carnem et corium sentit, et aliquando calefactiones in toto corpore, et postea frigus et insomnietates, et circa faciem quasi formicæ currentes*," J. de Gaddeson, "*Rosa Anglica*," compiled 1314. A letter from Pierre Martyr written in 1488 to his friend Arias, "You write me that you are affected with a . . . disease, called . . . Galico by the Italians. . . . You describe with incomparable elegance . . . , the uneasiness in your joints, . . . and lastly, the ulcers in the mouth and foetor of your breath."

Karl Sudhoff has carefully compiled references to syphilis before 1494 and the period shortly afterward. He quotes many prescriptions in use in the Middle Ages for "lepra" the principal ingredient of which is mercury.

Many verses of the Bible have been questioned by some as references to syphilis, such as David's lamentations regarding his diseased bones, nocturnal pains, etc., following his affair with Bath-Sheba, or the scourge of Baal-Peor, but the verses citing the relation of alopecia to connection with prostitutes cannot be ignored (Isaiah iii, 17 and 24).

Among the Romans one may mention the love poems of Martial which speak of condylomata and their relation to intercourse.

Most interesting is a translation into French of some ancient Chinese manuscripts by Captain P. Dabry, French consul at Hong Keou, in 1863. Dabry, a scholar of Chinese literature, was not a physician, nor had he any axe to grind regarding

the origin of syphilis. The manuscripts translated were those collated on medicine by the Emperor Hoang-ty, 2637 B. C. The chancre, genital and extragenital, is described in exact detail. The Chinese word for copper is used to describe the color of skin manifestations. Tertiary lesions and hereditary syphilis were described with surprising completeness, and most interesting of all was the treatment—rubbing with mercury and oil.

MERRILL W. HOLLINGSWORTH,
Santa Ana.

The Kahn Precipitation Test—The time-honored Wassermann test may soon be supplanted by a much simpler laboratory test for syphilis, the Kahn precipitation test. This test depends upon the production of a visible precipitate when the Kahn antigen is mixed with a serum containing syphilitic reagin. Although this test is comparatively new its accuracy has been so proved by comparison with the Wassermann test in many thousands of cases that it has been officially adopted by many private, state and government laboratories.

In a recent article comparing the Kahn and Wassermann tests as performed on 26,000 sera, Thomas G. Hull of the Illinois Department of Public Health speaks very highly of the Kahn test. He reports a close agreement of the two tests in 97.8 per cent of the cases. In cases in which the tests differed the Kahn test was found to be more sensitive in those cases which had received treatment. It gives no more false positive or false negative results than does the Wassermann test.

The Kahn test requires very little equipment—antigen, test tubes, water bath, pipettes, saline and patient's serum. It does not require the sheep, rabbits and guinea pigs demanded by the Wassermann test. This makes for economy. Having but one reagent which requires standardization, the Kahn test is less subject to errors in technique than the Wassermann. For the same reason its performance is far less laborious.

It requires less than an hour to run a Kahn test, whereas the modern Kolmer-Wassermann test requires eighteen to twenty-four hours.

The Kahn test can be performed on specimens of blood which are hemolyzed or anticomplimentary and so unsuited for the Wassermann test.

With all of the above advantages, including simplicity, the Kahn test is not one which can be run in daily office work by one untrained in its interpretation.

H. J. TEMPLETON,
Oakland.

Correction of Error in July Issue—The x-ray plates illustrating Dr. Henry J. Gerstenberger's article on "The Antirachitic Value of Human Milk" which appeared on page 42 of the July issue of CALIFORNIA AND WESTERN MEDICINE were reversed in printing. In consequence, the legends 1-a should read 1-f; 1-b, 1-e; 1-c, 1-d; 1-d, 1-c; 1-e, 1-b; and 1-f, 1-a. Doctor Gerstenberger's address should have been, The Babies' and Children's Hospital, 2103 Adelbert Road, Cleveland, Ohio.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

PERCY T. PHILLIPS.....President
WILLIAM H. KIGER.....President-Elect
T. HENSHAW KELLY.....Vice-President
EMMA W. POPE.....Secretary-Editor

OFFICIAL NOTICES

Extension Lecture Service—In the September issue of CALIFORNIA AND WESTERN MEDICINE was published a notice to members inviting them to join the Extension Lecture Service and to submit not more than four papers they were prepared to present before county societies. That this service is appreciated by county societies is evidenced by the report in this issue from the Marin County secretary; and that it is constantly used is shown by the monthly reports of all county secretaries.

The completed program, listed by authors and by departments of medicine, will be furnished all county secretaries as a reprint on November 1. Further names and titles will be included if sent this office prior to October 15.

Appended to the county society news will be found the complete Extension Lecture Program.

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The regular meeting of the Alameda County Medical Association was held at the Ethel Moore Memorial Building, August 15, 1927, being called to order at 8:15 by President George Rothganger. The program of the evening, which was prepared by Dr. Harry E. Foster, consisted of a symposium on Scarlet Fever and Scarlet Fever-Like Diseases. Dr. Frank M. Kelly, recently appointed health officer of the city of Oakland, discussed the subject, Scarlet Fever and Scarlatinaform Eruptions. He reviewed the classical symptoms and differential diagnosis of these diseases, laying emphasis upon the fact that differentiation is not always possible even by those of wide experience. Dr. J. R. Scott, health officer of the city of Berkeley, discussed the Epidemiology of Scarlet Fever; Dr. H. C. Coe took as his subject, Scarlatinaform Eruptions, reviewing briefly many of the diseases which may be confused with scarlet fever. Dr. W. A. Wood talked upon the subject, Modern Methods of Treatments of Scarlet Fever, emphasizing the importance of general methods and laying stress on the fact that specific therapeutic measures were not yet sufficiently developed to be relied upon, but that they were of assistance in the graver forms of the malady. There being no other business the meeting adjourned to the refreshment room for a social hour.

GERTRUDE MOORE, *Secretary*.



FRESNO COUNTY

The September meeting of the Fresno County Medical Society was held at the Hotel Californian, Fresno, Tuesday evening, September 6. Neil Jorgensen presided in the absence of D. I. Aller, president of the society. The minutes of the June meeting were approved as read. There were no committee reports.

An advisory committee of four members of the

society was granted to G. L. Long, county health officer, at his own request.

A resolution was adopted by the society expressing sympathy to the family of W. P. Miller, who died during the summer recess.

F. R. Ruff, roentgenologist to the Burnett Sanitarium, was elected to membership in the society.

The paper of the evening was presented in a most interesting manner by L. A. Emge of Stanford University. "The Cause and Treatment of Sterility in Women" was his subject.

According to Doctor Emge there are between three and four million sterile marriages in our country within the child-bearing age. We have no justification in applying any procedure to relieve this sterility before we have decided wherein lies the barrier to fertilization. Sterility is a fifty-fifty proposition, and yet, in one series of 108 cases Doctor Emge had charted, forty-eight women had been operated upon with but little personal investigation, and none of the husbands had been examined. The histories revealed a curettage or suspension as the usual operation, although Doctor Emge believes a suspension would rarely ever influence pregnancy. Curettage is seldom indicated except in hyperplasia of the endometrium.

Examination shortly after coitus best adjudges capability of both husband and wife. The sperm is thus in its natural environment as to temperature and chemical reaction. Tubal insufflation was next mentioned as an aid in determining the potency of the fallopian tubes. The technique used by Doctor Emge was given in detail—its indications and contraindications. Doctor Emge called attention to the recent fatalities from insufflation recently reported by Moench of New York and other cases in Chicago. The use of iodized oil in filming the tubes was evaluated and x-ray films showing different conditions of tubes passed out to the audience. Here again the contraindications to this method were brought out—iodized oil is never to be used in palpable or visible pathology of uterus or tubes.

Cervical obstruction and infantilism were given as the two commonest causes of female sterility, and by cervical obstruction was meant chemical, obstruction, not mechanical. The various endocrine disturbances were mentioned as a cause of sterility as well as the infantile type of development.

As to treatment in the female, cauterization of the cervix is to be recommended in preference to the Sturmdorf operation where either procedure is indicated, for in the latter procedure infected tissue is usually implanted higher in the cervical canal. Tubal insufflation is often a therapeutic measure as well as a diagnostic procedure. Alkaline douches may be recommended in high acidity of the cervical surfaces. Resection and end-to-end anastomosis of a tube is at times the necessary procedure. Suture of an ovary, with intact blood supply, into the fundic end of the uterus is unsuccessful and has been given up. Artificial insemination is not approved.

Galvanism is a most serviceable procedure in a so-called fibrous type of uterus. Of the different endocrine disturbances "subthyroidism" is the only type amenable to treatment, and the results here are sometimes quite gratifying. Ovarian medication is never to be used for sterility. Nothing can be done for the patient with infantile uterus.

Following a brief discussion by members of the society the meeting was adjourned.

E. E. HALLEY, *Assistant Secretary*.

KERN COUNTY

The regular monthly meeting of the Kern County Medical Society was held at the Kern County General Hospital on Thursday evening, September 15, the first meeting since May.

Meeting called to order by President McLain. There was a large percentage of the members of the society present who all joined in a symposium on infantile paralysis.

Doctor Cuneo, city health officer, discussed the new State Board of Health regulations. He also reported twenty-one cases of infantile paralysis during the past six months with seven deaths.

Dr. Joe Smith, county health officer, discussed the difficulty in enforcing some of the health regulations, particularly those regarding the handling and disposition of milk. He also reported having had eighty cases of infantile paralysis in Kern County during the past six months with ten deaths.

Meeting then adjourned to the banquet room where light refreshments were served and a general discussion had relative to quarantine of various diseases.

ROBERT M. JONES, *Secretary*.



MARIN COUNTY

The Marin County Medical Society has had its summer vacation whether its individual members have had such or not. This month marks the beginning of our regular work.

We have found that the members will not take the trouble to attend a meeting unless an outside speaker presents a paper, and so we find the Extension Lecture Program extremely helpful. We hope that the program will continue to exist and grow in volume and increase in usefulness.

An interesting question came up a short time ago in regard to the use of high frequency and diathermy apparatus. When this apparatus is used all radio machines within several blocks are rendered useless during the time the high frequency apparatus is in use, and the question arises as to who has the "right of way."

If the youngsters are deprived of their "bedtime stories" or the older sports do not get their baseball returns, something is going to happen. I am told that in San Francisco there is an ordinance requiring owners of the offending instruments to use them in a lead-lined room, which would be rather an expensive way to overcome the nuisance. A lead-lined box might be employed, but would be cumbersome and awkward to use. Can any reader tell us how this situation is met in other towns?

This would appear to be a subject of considerable importance to the medical profession and of interest to the public at large.

W. F. JONES, *Secretary*.



MERCED COUNTY

"The Action of the Human Heart in Health and Disease," illustrated by moving pictures of the living heart, was the topic of Dr. William Newman of San Francisco before the Merced County Medical Society at their first regular meeting of the season, held September 8 at the El Capitan Hotel, Merced.

Doctor Newman spoke in the place of Dr. Harry Spiro of Stanford University. He is an associate of Doctor Spiro, and the lecture is one prepared for the State Medical Society in May, 1928, according to Dr. H. Kylberg, secretary.

Including visitors there was an attendance of twenty-two doctors, the best attendance ever had. Those present were: Drs. F. R. DeLapp, counselor for this district, and J. A. Cooper, both of Modesto; C. E. Pearson and H. E. Meyer of Turlock; B. H. Bush of Los Banos; Jackson of Dos Palos; A. W. Gustafson, Gustine; Clarence Fitzgibbon, Merced Falls; W. E. Lilley, A. S. Parker, Chester Moyle, J. L. Mudd, Fred O. Lien, C. W. Kahl, E. R. Fountain, and H. Kylberg of Merced; W. C. Cotton of Atwater; Doctor Mead and F. P. Wisner of Chow-

chilla; and A. W. Meany, principal of the Merced high school as a guest of the Association.

Doctor Jackson of Dos Palos and Doctor Hughes of Gustine were admitted as new members.

The program presented was received with hearty appreciation and applause. Doctor Newman was detained in lively discussion by a number of members present until after midnight.

H. KYLBERG, *Secretary*.



SAN DIEGO COUNTY

After a quiescent period of two months all the activities of the medical society and hospital staff organizations will be resumed in September. Meanwhile the summer months have witnessed a scene of unrest and migration on the part of the physicians. Fully 50 per cent of the physicians holding offices down town have changed their locations, many going into the new Medico-Dental Building, quite a few into the new John D. Spreckels Building.

A movement of some interest is the tendency on the part of small groups to get together and build their own offices in locations somewhat removed from the congested districts. Upper Fourth Street thus far has been selected as "Doctors' Row," and within the past year or two the following groups have established themselves in their own ground-floor offices:

Kinney and Elliott—X-ray and radium diagnosis and treatment.

Brown and Cornell—Ear, nose, and throat.

Rees, Stealy, McClendon, Cook, and Graham, a rather impressive group doing general medicine and surgery, and housed in one of the most complete buildings of its kind on the coast.

Sharp, Wood, and Sherrill—Pediatrics.

O'Neill and Tanner—General surgery.

Dement—Obstetrics.

Baxter—Internal medicine.

Thornton and Belford—Pediatrics.

Higbee—Ear, nose, and throat.

Carter and Bobbitt—General medicine.

This exodus from the downtown office buildings represents a protest against the high rentals and the difficult parking facilities there prevailing. Another form which the protest takes is the getting together of physicians and the building for themselves an office building provided with auto parking. San Diego physicians have not yet accomplished this; but there was open during the summer the first exclusive professional building in town which houses upward of one hundred physicians and dentists.

On the evening of September 10 the various tenants of the new Medico-Dental Building kept open house to all members of the two professions, when one could stroll about and see how the other fellows were quartered. Games and refreshments were indulged in up on the fourteenth floor, where rooms are provided for the medical library and a roof promenade. This library when established in its new quarters will be one of the most attractive libraries on the coast. Its windows facing east, west, and south present a perfect panoramic view of city, mountain, bay, and ocean. Medical visitors to San Diego are invited to make this their rendezvous with their friends.

Scripps Memorial Hospital held its first staff meeting since the summer vacation on the evening of September 6. Some interesting clinical cases were discussed and important business transacted, President Sherrill presiding.

On the evening of September 13 the County Medical Society was the guest of Captain Raymond Spear, Commandant of the Naval Hospital in Balboa Park, where after dinner a clinical program was presented by members of his staff.

Doctor Eaton, a representative of the American College of Surgeons spent a few days in San Diego early in September checking up on local hospital conditions and advising regarding hospital betterment.

ROBERT POLLACK.

SAN FRANCISCO COUNTY

The San Francisco Medical Society was fortunate in having as its guest speaker at the general meeting on September 13, Miss Justina H. Hill from Dr. Hugh Young's Clinic at Johns Hopkins. She spoke on "Recent Experimental Work with Mercurochrome—220," stating that work so far done shows that the action of mercurochrome—220 in streptococcus septicemias and pneumococcus infections is not bacteriocidal, but is concerned in some manner with immune reactions, as normal horse serum mercurochrome mixtures were found to be more effective than mercurochrome or serum alone. Further work is to be done.

St. Joseph's Hospital staff held its monthly meeting at the hospital on September 14 at 8:30 p. m. Case reports were presented by the following members: Roy Parkinson (lateral sinus thrombosis), J. M. Stowell (sarcoma of lung, gastric ulcer and empyema), and Ethan Smith (multiple fractures and massive hernia). Ernst Gehrels showed a patient upon whom a Kraske operation for rectal carcinoma had been done and F. H. Redewell spoke upon the subject of "Diverticulum of the Bladder" illustrating the paper by lantern slides and showing a patient in the hospital suffering from this lesion.

T. HENSHAW KELLY, *Secretary*.



SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held at the Medico-Dental club-room, 242 North Sutter Street, Stockton, Thursday, September 1, at 8 p. m. The meeting was called to order at 8:30 p. m. Dr. George H. Sanderson presiding. Twenty-four were in attendance.

The chairman introduced Doctor Woolf, who spoke on the subject "Proctological Surgery." Doctor Woolf gave a general résumé of the modern viewpoint of proctology. His interesting and instructive talk included:

1. General surgical anatomy of the rectum and anus.
2. Modern treatment of hemorrhoids, abscess, fistula, and fissure.
3. Tumors of the rectum.
4. Differential diagnosis from cancer of rectum.
5. Type of operation desirable in malignant disease.

The doctor showed a patient upon whom he had performed an operation for cancer of the rectum. Those present asked many questions, which the doctor answered in a very practical way.

After the scientific program the minutes of the previous meeting were read and approved.

The board of directors of the society recommended that the medical society endorse the action of the ethics committee as stated in their letter of June 23, 1927, and that any member of the society who continues to render services to the Pacific Health and Hospital Service Corporation or similar organizations shall be suspended from the society.

Action—G. H. Rohrbacher moved, seconded by H. E. Kaplan, that the society accept the recommendation of the board of directors.

Moved by E. L. Blackmun, seconded by C. A. Broadus, to amend the motion by striking out the clause, "Shall be suspended from the society." The amendment was lost; the main motion carried.

The meeting adjourned at 11:10 p. m.

FRED J. CONZELMANN, *Secretary*.



SAN MATEO COUNTY

The San Mateo County Medical Association opened the new year with a barbecue Wednesday evening, September 7, at Camp Sawyer, Dr. W. C. Chidester acting as host. Mr. Springer, a lawyer from Palo Alto, gave a very interesting dissertation on the common mosquito. A few stories and songs followed, after which we adjourned.

Dr. A. L. Offield has been appointed to the position of chief of staff at the Community Hospital to fill

the place left vacant by the death of his brother-in-law, Dr. Wood C. Baker.

H. WADE MACOMBER, *Secretary*.



SONOMA COUNTY

The Sonoma County Medical Society held the regular meeting on September 8. The society was entertained at dinner by the Santa Rosa Clinic at 7 p. m. in the Elks' Club.

A short business session preceded an excellent paper by Dr. William W. Washburn of San Francisco on the diagnosis and surgery of tumors of the neck, which was illustrated by a fine collection of lantern slides.

J. LESLIE SPEAR, *Secretary*.

CHANGES IN MEMBERSHIP

New Members—San Diego County—Raymond C. Lindholm, San Diego.

San Francisco County—Glenn F. Cushman, Albert D. Davis, William C. Frey, Thomas E. P. Gocher, Robert L. Groves, Charles T. Hayden, Berthel L. Henning, George C. Hensel, Grace M. McKellips, Harry Partridge, Pleasant A. Taylor, Stuart C. Way, Alfred H. Washburn (associate), San Francisco.

Stanislaus County—Preston C. Byington, Modesto. Yolo-Colusa County—Reinhard V. Looser, Vincent E. Wagner, Woodland.

DEATHS

Bishop, Frank Crowell. Died at Los Angeles, September 3, 1927, age 44 years. Graduate of College of Physicians and Surgeons, Los Angeles, 1914. Doctor Bishop was a member of the Los Angeles County Medical Society, the California Medical Association, and Fellow of the American Medical Association.

Rantz, Stephen Hester. Died at Placerville, September, 1927, age 60 years. Graduate of the University of California Medical School, 1893. Doctor Rantz was a member of the Placer County Medical Society, the California Medical Association, and Fellow of the American Medical Association.

Wernigk, Reinhard. Died at Los Angeles, August 24, 1927, age 66 years. Graduate of the Rush Medical College, Chicago, 1881. Licensed in California, 1887. Doctor Wernigk was a member of the Los Angeles County Medical Society, the California Medical Association, and Fellow of the American Medical Association.

IN MEMORIAM

Wood Carson Baker was born in Maxwell, Colusa County, California, July 21, 1877. His preliminary education was received in the schools of Colusa County.

He was graduated from Cooper Medical College in 1903. He served his internship in the Southern Pacific Hospital in San Francisco, and one year as resident physician at the same place.

He was married in San Francisco to Leona Offield, December 27, 1905. In 1906 they settled in San Mateo where he practiced his profession until the time of his death on August 17, 1927.

He was the surgeon in charge of the San Mateo County Hospital since 1910, and medical superintendent of the new Community Hospital since 1923, where his work among the poor was greatly appreciated by the people of the county.

Doctor Baker served as a captain for the Medical Corps during the World War, being stationed at Letterman Hospital a portion of the time.

He was a member of the San Mateo County Medical Society, the California Medical Association, and American Medical Association.

He was also a member of the Kiwanis Club, the Elks' Lodge, Masonic Lodge, the Shrine, and the American Legion.

He will long be missed by his fellow members of the County Medical Society, and a great following of friends for his jovial and happy personality.

EXTENSION LECTURE PROGRAM

Authors and Subject Index

Harry E. Alderson, M. D., and Stuart C. Way, M. D., 320 Medico-Dental Building, 490 Post Street, San Francisco.

- 1. The Determination of Malignancy in Tumors of the Skin. (Lantern slides.)
- 2. Dermatoses Commonly Seen in General Practice. (Lantern slides.)
- 3. A Skin and Syphilis Clinic Will Be Held of Locally Selected Cases (five or six).

Hans Barkan, M. D., 921 Medico-Dental Building, 490 Post Street, San Francisco.

- 1. Headaches Due to Ocular Causes.
- 2. Industrial Aspects of Eye Injuries.
- 3. Modern Methods of Cataract Operations.
- 4. Short-Sightedness, Its Medical and Sociological Aspects.

Leo P. Bell, M. D., Woodland Clinic, Woodland.

- 1. Diseases of the Spleen and Their Treatment.
- 2. Preoperative Preparation and Surgical Treatment of Exophthalmic and Thyrotoxic Goiter.
- 3. Diagnosis and Surgical Treatment of Carcinoma of Rectum and Sigmoid.
- 4. The Surgical and Medical Significance of Dyspepsia.

LeRoy Brooks, M. D., 731 Medico-Dental Building, 490 Post Street, San Francisco.

- 1. Technique of Aseptic End to End Anastomosis of the Intestine.
- 2. Surgical Treatment of Goiter.
- 3. The Importance of Fluids, Alkali, and Acid Balance in the Treatment of Surgical Patients.
- 4. The Overtaxed Liver in Peritonitis.

Philip King Brown, M. D., 401 Medical Building, 909 Hyde Street, San Francisco.

- 1. Unusual Effects of Local Infections.
- 2. The Treatment of Some Illustrative Cases of Pernicious Anemia Treated by Minot-Murphy Diet.
- 3. A Series of Leukemias Treated with X-ray and the Treatment of Polycythemia.
- 4. Cases Simulating Glandular Insufficiencies.

Joseph Catton, M. D., 609 Howard Building, 209 Post Street, San Francisco.

- 1. The Doctor in Court.
- 2. The Patient Who Has the Disease versus the Disease the Patient Has.
- 3. Vegetative Nervous System; Practical Considerations.
- 4. Encephalitis; In General Practice.

Ernest S. du Bray, M. D., 1251 Flood Building, 870 Market Street, San Francisco.

- 1. Benign Glycosurias, Their Significance and Differentiation from True Pancreatic Diabetes.
- 2. Modern Views of the Chronic Nephropathies.
- 3. Criteria for Prognosis in Hypertensive Cardiovascular Disease.

Rex Duncan, M. D., 204 Professional Building, 1052 West Sixth Street, Los Angeles.

- 1. What the General Practitioner Should Know About Cancer.
- 2. Treatment of Uterine Cancer with Observation of More Than 500 Cases Treated During the Past Ten Years.
- 3. Treatment of Lip and Superficial Epitheliomata.
- 4. Diagnosis and Treatment of Breast Cancer.

L. A. Emge, M. D., 507 Union Square Building, 350 Post Street, San Francisco.

- 1. Dysmenorrhea and Its Treatment.
- 2. Rational Therapy for Vaginal Discharge.
- 3. The Treatment of Sterility.
- 4. Endometritis, Its Treatment and Symptomatology.

Franklin Farman, M. D., 709 California Medical Building, 1401 South Hope Street, Los Angeles.

- 1. The Diagnosis and Treatment of Kidney and Ureteral Stones. (Lantern slides.)
- 2. Chronic Prostatitis.
- 3. Aberrant Renal Artery as a Cause of Hydronephrosis. (Lantern slides.)

Paul A. Ferrier, M. D., Professional Building, 65 North Madison Avenue, Pasadena.

- 1. Tuberculosis of the Urinary System.
- 2. Tumors of the Bladder.
- 3. Control of Hemorrhage with Particular Reference to the Urinary System.

Ernst Gehrels, M. D., Medico-Dental Building, 490 Post Street, San Francisco.

- 1. Local Anesthesia for Abdominal Operations, Especially Splanchnic Anesthesia.
- 2. The Radical Surgical Treatment of Gastric and Duodenal Ulcer.
- 3. The Treatment of Gall Stones in the Common Duct.
- 4. Operative Mobilization of Ankylosed Joints, Especially the Knee Joint.

Thomas E. Gibson, M. D., 738 Flood Building, 870 Market Street, San Francisco.

- 1. The Diagnosis of Adrenal Tumors. (Lantern slides.)
- 2. Improvements in Perineal Prostatectomy Permitting Primary Wound Closure and Healing of Wounds Without Drainage. (Lantern slides.)

Edgar Lorrington Gilcreest, M. D., 315 Fitzhugh Building, 384 Post Street, San Francisco.

- 1. Conservatism in the Treatment of Fractures.
- 2. Treatment of Fractures in the Neighborhood of Joints.
- 3. Cults, Quacks and "Cures"—Being a Dissertation on When Ignorance Is Not Bliss.
- 4. Lord Lister and the Renaissance of Surgery.

A. Gottlieb, M. D., 1240 Roosevelt Building, 727 West Seventh Street, Los Angeles.

- 1. Sun Therapy in Bone Tuberculosis.
- 2. Osteochondritis—Koehler's Disease, Perthes' Disease, Osgood-Schlatter's Disease, etc.
- 3. Painful Heel—Bursitis About the Heel.

Richard W. Harvey, M. D., 711 Fitzhugh Building, 384 Post Street, San Francisco.

- 1. Combined System Disease. (Lantern slides.)
- 2. The Case of the Mental Patient.
- 3. Medical Aspects of Certain Problem Cases.
- 4. The Neurotic Patient.

Arthur W. Hebert, M. D., 819 Flood Building, 870 Market Street, San Francisco.

- 1. Para-Nasal Sinus Disease in Children, Manifestation, Diagnosis, and Treatment. (Lantern slides.)
- 2. Ailments Resulting from Para-Nasal Sinus Disease. (Lantern slides.)
- 3. The Relation of Para-Nasal Sinus Disease to Asthma and Hay Fever. (Lantern slides.)
- 4. Headaches of Nasal Origin. (Lantern slides.)

Samuel H. Hurwitz, M. D., 1214 Medico-Dental Building, 490 Post Street, San Francisco.

- 1. The Relative Importance of Hypersensitiveness and Infection in Bronchial Asthma.
- 2. Diagnosis and Treatment of Bacterial Asthma.
- 3. The Rhinological Aspects of Hay Fever and Asthma.

Louis Clive Jacobs, M. D., 462 Flood Building, 870 Market Street, San Francisco.

- 1. Diagnosis and Treatment of Lesions of the Posterior Urethra. (Lantern slides and wax models.)
- 2. The Surgical Prostate and Its Complications. (Lantern slides.)
- 3. The Infected Prostate and Its Relation to Focal Infection.
- 4. Calculi of the Urological Tract.

W. H. Kellogg, M. D., State Hygienic Laboratory, Berkeley.

- 1. The Prevention of Diphtheria and Scarlet Fever.
- 2. The Practice of Preventive Medicine.
- 3. Anaphylaxis.
- 4. Serums and Vaccines.

William J. Kerr, M. D., University of California Hospital, San Francisco.

- 1. Treatment of Heart Disease.
- 2. Diagnosis and Medical Treatment of Goiter.
- 3. The Cardiac Irregularities, Their Recognition, Treatment, and Prognosis. (Lantern slides.)
- 4. Liver Function Tests. (Lantern slides.)

Alson R. Kilgore, M. D., 724 Medico-Dental Building, 490 Post Street, San Francisco.

1. Present Tendencies in Cancer Research and Their Clinical Significance.
2. Breast Cysts and Their Relation to Cancer. (Lantern slides.)
3. The Indications for Neck Dissection in Mouth and Lip Cancer.

Eugene S. Kilgore, M. D., 724 Medico-Dental Building, 490 Post Street, San Francisco.

1. Cardiac Pain—Clinical Types and Significance.
2. The Assessment of Circulatory Efficiency.
3. Cardiac Neuroses.
4. The Contribution of Graphic Methods to the Practical Handling of Heart Cases.

Henry A. R. Kreutzmann, M. D., 1195 Bush Street, San Francisco.

1. Spinal Cord Bladders; Causes, Diagnosis, and Treatment. (Lantern slides.)
2. The Treatment of Large Renal Calculi. (Lantern slides.)
3. The Non-Surgical Treatment of Ureteral Calculi. (Lantern slides.)
4. Urology in Infants. (Lantern slides.)

Fred H. Kruse, M. D., 916 Fitzhugh Building, 384 Post Street, San Francisco.

1. Recent Advances in Diagnosis and Treatment of Gall Bladder Disease. (Lantern slides.)
2. Irritable Colon. (Lantern slides.)
3. Studies in Intestinal Bacteriology and Floras.
4. Peptic Ulcer; Etiology, Diagnosis, and Treatment. (Lantern slides.)

Robert William Langley, M. D., 802 Professional Building, 1052 West Sixth Street, Los Angeles.

1. Heart Disease and Its Relation to Obstetrics.
2. Fluoroscopic Study of the Heart. (Lantern slides.)
3. Chronic Heart Disease and Its Management.
4. Angina Pectoris.

E. Eric Larson, M. D., Woodland Clinic, Woodland.

1. Treatment of Peptic Ulcer.
2. Treatment of Empyema.
3. Treatment of Prostatic Disease.

John D. Lawson, M. D., Woodland Clinic, Woodland.

1. Comparative Value of Gastro-intestinal Series and Cholecystography in Diagnosis of Gall Bladder Disease. (Lantern slides.)
2. Roentgen Therapy in Treatment of Erysipelas.
3. Use of Radiation in Conjunction with Colloidal Lead in Treatment of Malignancy.

Hans Lissner, M. D., 204 Fitzhugh Building, 384 Post Street, San Francisco.

1. Obesity in Children and Adults—Types and Treatment. (Lantern slides.)
2. Recognition and Treatment of Myxedema. (Lantern slides.)
3. Endocrine Disturbances of Menstruation. (Lantern slides.)
4. Roentgenology as an Aid in the Diagnosis of Ductless Gland Disease. (Lantern slides.)

Stanley H. Mentzer, M. D., Physicians' Building, 516 Sutter Street, San Francisco.

1. What are the Criteria for Cholecystectomy in Cholelithiasis? (Lantern slides.)
2. Cholesterosis of the Gall Bladder; Its Treatment. (Lantern slides.)
3. The Diagnosis and Treatment of Acute Cholecystitis. (Lantern slides.)
4. The Present Status of Gall Bladder Surgery. (Lantern slides.)

V. H. Podstata, M. D., The Livermore Sanitarium, Livermore.

1. The Unusual (Problem) Child.
2. The Varieties of Incipient Mental Depression. (Doctor Podstata not available on Tuesdays.)

D. Schuyler Pulford, M. D., Woodland Clinic, Woodland.

1. Alkalosis from Upper Intestinal Obstruction. (Lantern slides.)
2. The Colloidal Lead Treatment of Malignancy.
3. Dietary Treatment of Epilepsy. (Lantern slides.)
4. The Prevention and Classification of Goiter (Lantern slides.)

J. Marion Read, M. D., 1183 Flood Building, 870 Market Street, San Francisco.

1. Blood Pressure—Physiological and Clinical Aspects of Abnormal Pressures. (Lantern slides.)
2. The Patient with a Goiter. (Lantern slides.)
3. The Management of Graves' Disease. (Lantern slides.)

Francis H. Redewill, M. D., 1117 Flood Building, 870 Market Street, San Francisco.

1. Hugh H. Young, M. D., the Father of Modern Urology.
2. The Urological Equipment of a Modern Hospital. (Lantern slides.)
3. Diverticulum of Urinary Bladder, Etiology, Diagnosis, Treatment. (Lantern slides.)
4. Ureteral Transplantation—Methods, Indications, Results. (Lantern slides.)

Alfred C. Reed, M. D., 715 Fitzhugh Building, 384 Post Street, San Francisco.

1. Amebiasis for the California Physician.
2. The Importance of Tropical Medicine in California.
3. The Periodic Health Examination with Demonstration.
4. Pernicious Anemia.

Robert Lewis Richards, M. D., 409 Fitzhugh Building, 384 Post Street, San Francisco.

1. Experience in First Aid to Mental Patients.
2. The Blind Spot in Medicine.
3. Dangerous Mental Ages.
4. The Thyroid and Mental States.

F. W. Rinkenberger, M. D., 703 Brockman Building, 520 West Seventh Street, Los Angeles.

1. Ulcer and Carcinoma of the Stomach.
2. Thyroid Diseases and Their Surgical Treatment.
3. Surgery in the Diabetic Patient.
4. Hernia.

Hobart Rogers, M. D., 3135 Webster Street, Oakland.

1. Practical Aspects of Cardiology.

Max Rothschild, M. D., 704 Ritzhugh Building, 384 Post Street, San Francisco.

1. The Early Diagnosis of Pulmonary Tuberculosis.
2. The Diagnosis and Treatment of Tuberculosis of Bronchial Glands in Children. (Lantern slides.)
3. The Treatment of Tuberculosis with Specific Remedies. (Lantern slides.)
4. The Treatment of Tuberculosis with Nonspecific Remedies, with Special Reference to Pneumothorax Treatment. (Lantern slides.)

Albert H. Rowe, M. D., 242 Moss Avenue, Oakland.

1. Diagnosis and Treatment of Seasonal and All-Year-Round Type of Hay Fever and Bronchial Asthma. (Lantern slides.)
2. Food Allergy as a Cause for Migraine and Indigestion.
3. Allergic Dermatitis and Eczema.
4. Diabetes Mellitus—Its Diagnosis and Treatment.

John J. Sampson, M. D., 510 St. Paul Building, 291 Geary Street, San Francisco.

1. Heart Sounds and Murmurs. An Analysis of Their Clinical Significance by Electrical Stethoscope Records. (Lantern slides.)
2. Problem of Heart Disease in Public Health.
3. Methods of Circulation Measurement; Cardiac and Peripheral Vessel Experiments of the Past Year; Their Relationship to Future Clinical Cardiology.

C. O. Sappington, M. D., 602 Hutchinson Building, 1705 Broadway, Oakland.

1. Industrial Hygiene as a Specialty of Modern Preventive Medicine. (Lantern slides.)
2. Periodic Health Examinations in Private Practice. (Lantern slides.)
3. The Administrative and Technical Problems of Industrial Medicine. (Lantern slides.)
4. The Reasons for Coordination Between Health Supervision in Schools and Industries.

Harry Spiro, M. D., 501 Flood Building, 870 Market Street, San Francisco.

1. Angina Pectoris, Treatment and Diagnosis.
2. The Use of Quinidine in Cardiac Irregularity.
3. Interpretation of Various Cardiac Murmurs.

4. Consideration of Heart Action in Health and Disease. (Moving pictures of the living animal heart.)

William E. Stevens, M. D., 602 Flood Building, 870 Market Street, San Francisco.

- 1. Tuberculosis of the Kidney.
- 2. Urinary Calculi.
- 3. Urology in Women.
- 4. Medical and Surgical Conditions of the Urinary Tract During Infancy and Childhood.

Steele F. Stewart, M. D., 817 Westlake Professional Building, 2007 Wilshire Boulevard, Los Angeles.

- 1. Convalescent Care of Infantile Paralysis.
- 2. Recent Developments in the Treatment of Spastic Paralysis.

H. J. Templeton, M. D., 3115 Webster Street, Oakland.

- 1. Dermatologic Manifestations of Syphilis. (Lantern slides.)
- 2. Diagnosis and Treatment of Syphilis. (Moving pictures—three reels.)
- 3. Common Dermatoses. (Lantern slides.)
- 4. Malignancies of the Skin; Treatment by Electrothermic Methods; Demonstration of Modalities Used.

E. B. Towne, M. D., Union Square Building, 350 Post Street, San Francisco.

- 1. Injuries of the Brain and Spinal Cord.
- 2. Tumor of the Brain and Spinal Cord.
- 3. Tic Douloureux.
- 4. Injuries of Peripheral Nerves.

William C. Voorsanger, M. D., 1001 Medico-Dental Building, 490 Post Street, San Francisco.

- 1. Undiagnosed Cough—A Study of 200 Patients. (Lantern slides.)
- 2. Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis.
- 3. Recent Advances in the Diagnosis of Pulmonary Tuberculosis.
- 4. Pulmonary Abscess; Classification, Prognosis, and Treatment. (Lantern slides.)

James T. Watkins, M. D., 212 Medical Building, 909 Hyde Street, San Francisco.

- 1. Reconstruction Operations for Ununited Fractures of the Femoral Neck.
- 2. Tuberculosis of the Hip; the Surgical Treatment of.
- 3. Diagnosis of Infantile Paralysis.
- 4. Surgical Treatment of Infantile Paralysis.

Miley B. Wesson, M. D., 1275 Flood Building, 870 Market Street, San Francisco.

- 1. Swollen Testicle—Possibilities, Differential Diagnosis and Treatment. (Lantern slides.)
- 2. Catarrh of the Bladder—Possibilities, Differential Diagnosis and Treatment. (Lantern slides.)
- 3. Blood in the Urine—Possibilities, Differential Diagnosis and Treatment. (Lantern slides.)
- 4. Backache Secondary to Genito-Urinary Infections. (Lantern slides.)

J. Homer Woolsey, M. D., 907 Medico-Dental Building, 490 Post Street, San Francisco.

- 1. Gastric Function. (Lantern slides.)
- 2. Diagnosis and Treatment of Peptic Ulcer. (Lantern slides.)
- 3. Choice of Surgery in Peptic Ulcer. (Lantern slides.)
- 4. Wound Infections.

Dermatology and Syphilology

Alderson, H. E. Templeton, H. J.

Way, Stuart C.

Endocrinology

Lisser, Hans

Eye, Ear, Nose, and Throat

Barkan, Hans Hebert, Arthur W.

General Subjects for Lay Audiences

Gilcreest, Edgar Lorrington

Gynecology and Obstetrics

Emge, L. A.

General Medicine

Brown, Philip King Pulford, D. Schuyler
du Bray, Ernest S. Read, J. Marion
Hurwitz, Samuel H. Reed, Alfred C.
Kerr, William J. Sappington, C. O.

(a) Allergy

Rowe, Albert H.

(b) Carcinoma

Kilgore, Alson R.

(c) Cardiology

Kilgore, Eugene S. Rogers, Hobart

Langley, Robert William Sampson, John J.

Spiro, Harry

(d) Gastro-Intestinal

Kruse, Fred H.

(e) Industrial

Sappington, C. O.

(f) Tuberculosis

Rothschild, Max Voorsanger, William C.

Neuropsychiatry

Catton, Joseph Podstata, V. H.

Harvey, Richard W. Richards, Robert Lewis

Orthopedics

Gottlieb, A. Stewart, Steele F.

Watkins, James T.

Preventive Medicine

Kellogg, W. H.

Public Health

Sappington, C. O.

Radiology

Duncan, Rex Lawson, John D.

Surgery

Bell, Leo P. Larson, E. Eric

Brooks, LeRoy Mentzer, Stanley H.

Gehrels, Ernst Rinkenberger, F. W.

Surgery (Brain and Spinal Cord)

Towne, E. B. Woolsey, John Homer

Urology

Farman, Franklin Jacobs, Louis Clive

Ferrier, Paul A. Kreutzmann, Henry A.

Gibson, Thomas E. Redewill, Francis H.

Gilcreest, Edgar Lorrington Stevens, William E.

Wesson, Miley B.

NEVADA STATE MEDICAL ASSOCIATION

WILLIAM L. SAMUELS.....	President
R. R. CRAIG.....	First Vice-President
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TWENTY-FOURTH ANNUAL MEETING

The following program was given at the twenty-fourth annual meeting of the Nevada State Medical Association which was held September 23, 1927, at Bowers Mansion, Reno.

Friday, 9 a. m.

President's Address—William L. Samuels.

Alson R. Kilgore, San Francisco—Breast Cysts and Cancer. Discussion opened by C. W. West, C. C. Tiffin, and D. W. Sooy.

J. Larue Robinson and Earl L. Creveling, Reno—Magnetic Extraction from Within the Globe. Discussion opened by D. K. Pischel, D. L. Shaw, and J. A. Fuller.

Dohrmann K. Pischel, San Francisco—Demonstration of the Hess Curtain for the Diagnosis of Palsies of the Extrinsic Ocular Muscles. Discussion opened by J. L. Robinson, D. L. Shaw, and J. A. Fuller.

W. B. Coffey, San Francisco—Angina Pectoris—Anatomy, Physiology, and Surgical Procedure. Discussion opened by D. S. Pulford, Donald Maclean, and J. D. Humber.

D. Schuyler Pulford, Woodland, Cal.—The Clinical and Pathological Classification of the Common Types of Goiter.

Daniel W. Sooy, San Francisco—Clinical Considerations of Goiter.

Charles C. Tiffin, Seattle, Wash.—Thyroid Disease. Discussion of last three papers opened by V. A. Muller, W. B. Coffey, and S. H. Hurwitz.

William A. Shaw, Elko—Acromio-Clavicular Dis-

location. Discussion opened by J. T. Watkins, R. R. Craig, and E. L. Gilcreest.

Samuel H. Hurwitz, San Francisco—The Applications of Allergy in Practice. Discussion opened by S. K. Morrison, A. R. Kilgore, and C. F. Welty.

Business Meeting

Friday Evening at 8 o'clock, Council Chamber,
City Hall, Reno

Registration and payment of dues.
Reading of minutes of last annual meeting.
Reports of delegate to A. M. A.
Reports of various committees.
Election of officers.

Officers to be elected—a president, two vice-presidents, secretary-treasurer, and one trustee.

Saturday, September 24, 9 a. m., Bowers Mansion

Robert P. Roantree, Elko—Torsion of the Spermatic Cord. Discussion opened by W. E. Stevens, J. W. Gerow, and Lewis Michelson.

Miley B. Wesson, San Francisco—Confusing Cystograms and Pyelograms. Discussion opened by R. A. Bowdle, W. A. Shaw, and S. M. Sproat.

Lewis Michelson, San Francisco—Obscure Pain in the Lower Abdomen Due to Stricture of the Ureter. Discussion opened by W. E. Stevens, B. H. Caples, and R. P. Roantree.

William E. Stevens, San Francisco—Medical and Surgical Urology in Infants and Children. Discussion opened by M. B. Wesson, L. Michelson, and John Tees.

Thomas Wilbur Bath, Reno—Endocervicitis—Etiology, Pathology, and Treatment. Discussion opened by Emmet Rixford, S. K. Morrison, and A. R. DaCosta.

Edgar L. Gilcreest, San Francisco—Cults and Cures. Discussion opened by T. W. Bath, G. W. Pierce, and W. H. Hood.

George Warren Pierce, San Francisco—Treatment of Cleft Palate and Hare-Lip. Discussion opened by A. L. Stadtherr, W. B. Coffey, and A. F. Adams.

B. C-N. O'Reilly, San Francisco—Treatment and Prognosis of Wassermann Fast Cases. Discussion opened by B. H. Caples, A. L. Grover, and M. B. Wesson.

I. S. Egan, Goldfield—The Neurotic and Irritable Abdomen. Discussion opened by R. A. Bowdle, W. W. Washburn, and C. E. Swezy.

Luncheon was served Friday and Saturday at the Mansion. A banquet at the pavilion at Lawton Springs was held at 9 p. m., Saturday.

UTAH STATE MEDICAL ASSOCIATION

W. R. CALDERWOOD, Salt Lake.....President
E. H. SMITH, Ogden.....President-Elect
FRANK B. STEELE, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....Associate Editor for Utah

OFFICIAL NOTICES

Change in Editorial Make-Up—In the future there will be a decided change in the make-up of the Utah section, in harmony with the wishes of the editorial staff as expressed to the associate editor for Utah, in a letter of recent date.

The editorials will be eliminated. The section will cover first, official notices from the state secretary or other state officers. In the order named will then follow, reports of societies, changes in membership, notices of deaths, and obituaries.

This means simply that, unless the secretaries of the component societies in the state association wake up and get in some news before the tenth of each month, there will not be very much in the Utah section.

Ever since the present editor had the job wished upon him he has been trying to coax the various county societies to report their meetings and other items of interest. He has failed. And now unless there is some support given the Utah section will fail

also. *Verbum sap.* But the editor shall follow the pleasure of the editorial staff, and if nobody wants to furnish news, then there will be no news.

In lieu of the editorials which the present editor has been writing for the past four years, he is now authorized to invite a limited number of the medical men of the state to submit comment on timely subjects of medical interest to be printed in the section "Medicine Today," which you will find in each issue now as for some time in the past. The editor hopes that some men will come forward with articles of interest for this section within the next few weeks.

In view of the fact that all material must be in the hands of the printers by the 15th, this number will contain few reports on medical societies, owing to the fact that the material cannot be obtained by the regular publication date.

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COMPONENT COUNTY SOCIETIES

The first regular meeting of the Salt Lake County Medical Society was held at the L. D. S. Hospital on the evening of September 12. The program was arranged by the hospital staff. A more complete account will appear from the local secretary, M. M. Critchlow, later, the meeting having occurred at a date such as to prevent his getting copy into the hands of the editor in time to be included in the present issue.

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Minutes of the Salt Lake County Medical Society, Salt Lake City—The regular meeting of the Salt Lake County Medical Society was held at the L. D. S. Hospital, Monday, September 12, 1927.

Meeting was called to order at 8 p. m. by President W. G. Schulte. Forty-three members and four visitors were present.

The minutes of the previous meeting were read and accepted without correction.

Clarence Snow, chairman of the medical staff of the L. D. S. Hospital, took the chair and introduced the speakers.

F. F. Hatch presented a woman upon whom he had operated for calculus and pyonephrosis. Pathological specimen was shown by L. L. Daynes and shown to contain malignant growth, in addition to the other pathology.

H. T. Anderson presented a man afflicted with general paresis who has greatly improved by inoculation with the malaria parasite. The case was discussed by H. S. Scott. Leland Cowan discussed bone tumors, especially Ewing tumors, which he demonstrated with lantern slides.

J. E. Tyree presented x-ray films of multiple myelomata of the skull. He also showed pathological specimen of a rodent ulcer of the scalp, with invasion of the skull. He also gave a very interesting talk on hemorrhage from the middle meningeal artery.

Applications for membership, signed by Q. R. Coray and Albert Leigh, were read.

A communication from the U. S. F. and G. Company of Baltimore was read and tabled.

Adjournment at 9:30 p. m.

M. M. CRITCHLOW, *Secretary.*

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The Holy Cross Clinical Association held their regular monthly meeting—the first of the fall term—on the night of Monday, September 19, in the Assembly room of the hospital.

Doctor Schulte read a paper, and Doctor Ward presented an interesting case report.

Medicine in Africa—There is a movement afoot, according to foreign press reports, to teach medicine to competent natives in South Africa so that they may practice among their own people. A prominent Johannesburg physician recently advocated such a plan, citing the experience of the Dutch East Indies, where the native doctor experiment has worked out successfully. Native doctors, it is said, would possibly reduce the great evil of witchcraft, which now assists the spread of epidemics of disease among the natives. —*M. J. and Record.*

MISCELLANY

From time to time in this department of California and Western Medicine, appear columns grouped under the following headings: Comment on Current and Recent Articles in this Journal; History of Medicine; News; Medical Economics; Readers' Forum; California State Board of Health; and California Board of Medical Examiners. For Book Reviews, see index on the front cover, under Miscellany.

CURRENT COMMENT

FAIRNESS*

Statistics show that the tendency to claim damages from physicians and surgeons for their alleged sins of omission and commission is increasing. Some ascribe this tendency entirely to the influence of the cultists who are ever ready with criticism of scientific methods in medicine and surgery. To a large extent this undoubtedly is the explanation. However, I am of the opinion that this age of hurry and bustle, rapid transportation and modern activity, with a resultant increase in hazards, has created a situation where each man endeavors to hold the other fellow responsible and to obtain from him, if possible, compensation. This is encouraged by the increase in the various types of insurance which have been forced upon those whose occupations or activities carry with them possible accidents. Without due consideration of the justice of the claim, action is brought to recover. In fact, no allowance is made for human imperfections. I shall expect a word of thanks from the insurance people for advising insurance on everything, including life, possessions and conduct. While the burden of paying the premiums may at times irritate, it is the only way one can now live comfortably and safely. While universal insurance doubtless to some extent encourages the thing it in turn protects, we must have it.

I believe our best protection for alleged malpractice lies in a good insurance policy. Be sure that it covers everything, especially the x-ray. Even if we do not apply the x-ray for treatment or diagnosis ourselves, should we advise our patient to go to an x-ray laboratory for its use and there be an accident, it may be claimed that we are as responsible in the eyes of the law as the actual technician.

In addition, I believe membership in the California Medical Society is very desirable. While it does not provide indemnity if an adverse judgment is had, it does provide to deserving members defense by legal talent whose experience makes them of the best. It gives in all proper cases the active assistance of the society, and of every member thereof, the support of those who are friends and associates, those who are personally interested in your welfare.

In this connection a brief discussion of ethics is opportune. Accidents will happen. To say that there are no sins of omission or commission cannot be true when we know that to err is human; but in the main we are sure if an error is com-

mitted it is not through carelessness or ignorance. How easy it is for the physician or surgeon who is called in to take charge of a case that is not progressing satisfactorily, without saying a word, to convey the impression that the work has been poorly done. No doubt a large percentage of malpractice suits are inspired by impressions so made, a great many times inadvertently. Before any expression of opinion we should ascertain all the circumstances. Should we find there has been carelessness or negligence, it is not our place to defend; but where honest, intelligent effort has been used, it is our duty to our profession and its individual members to put forth every effort to uphold the methods that were used and to protect against criticism a result that, while not perfect, is the best that was obtainable under the circumstances. Should anyone be selfish enough to reason that a criticism of another's work will rebound to his glory and add to his practice he is mistaken. In the end, truth and fairness will prevail. We are only small units in a great and wonderful profession, and our welfare and prosperity depends on the reputation of the whole. Our happiness in our work depends on cordial, helpful relations with our confrères; sharp practices do not promote cordiality.

From the practical side, if confidence is lost in one member of the profession in a community, confidence in the entire profession of that community is lessened and the people think they must go elsewhere for better service. We must maintain adequate standards of education, training and conduct as well. We have a duty to our community as well as to ourselves, and we want the world to know we not only grow the best potatoes, sugar beets, and condensed milk, but also have the best physicians and surgeons, the lowest death rate and, in this day of one-piece bathing suits, the cutest appendectomy scars. I am discussing this particular phase of the ancient subject of ethics to impress upon our minds how easy it is for one physician inadvertently to precipitate another into a suit for alleged malpractice. And the resulting situation not only affects the individual sued, but reacts on the entire medical profession.

NEWS

Appointment of Doctor Muhl—The San Diego medical women are much elated over the signal honor which has been conferred upon one of their number in the appointment of Dr. Anita M. Muhl to the position of head of the Department of Special Education for the State of California. This is a new department being created by the State Board of Education, and Doctor Muhl's first duty will be to organize the de-

* Excerpt from an address at the Monterey County Medical Society, September 2, by Percy T. Phillips, M. D.

partment and map out her plan of procedure.—*San Diego County Med. Soc. Bulletin*.

Northern Medical Golf vs. Southern California Medical Golf—The Northern California Medical Golf Association will meet the Southern California Medical Golf Association in annual tournament at Del Monte and Pebble Beach on the week-end of October 29 and 30. Last year the North defeated the South, and the large plaque for which the annual contest is held is now in possession of the former, on display at the San Francisco County Medical Society Building. The southern organization will send up some very fine players, and the contest is sure to be a very close one this time. Those who attended last year will remember the various forms of entertainment provided and will be interested in knowing that greater preparations are being made for the coming event, and a much larger attendance is expected.

The following entertainment committee has been appointed:

John Hunt Shepard (chairman), San Jose; Herman J. Schlagater, Walter Schaller, San Francisco; Hugh Dormody, Monterey; Ream Leachman, Vallejo.

Members are advised to make their hotel reservations directly with the hotel as soon as possible.

CLARENCE A. DE PUY,
President.
HARRY E. ALDERSON,
Secretary-Treasurer.

New Method of Cancer Study—British physicians have evolved a method of cancer study by motion pictures which was described at a meeting of the British Empire cancer campaign held in the House of Lords, July 11. The cells are photographed over varying periods up to two days, and the film speeded up 906 times. The films are said to resemble those taken of unfolding flowers, and give a precise record of the growth of the cancer cells.—*Atlantic M. J.*

Regulation of Imported Milk—An act to regulate the importation of milk and cream into the United States for the purpose of promoting the dairy industry of the United States and protecting the public health, was passed at the last session of Congress. The enforcement of this act has been assigned to the Food, Drug, and Insecticide Administration, which also enforces the federal food and drugs act and certain other regulatory measures. The regulations for the enforcement of the milk act explain the procedure for making physical examination of cows, for applying the tuberculin test, for the sanitary inspection of dairy farms and of plants handling or shipping milk or cream, for the scoring of dairy farms or plants, for pasteurizing and determining the bacterial count, and outline the method for obtaining permanent permits required under the terms of the act.—*J. of the Missouri State Med. Assn.*

Children of Culion Leper Colony—In 1925 a plan for saving the uninfected children of the Culion leper colony in the Philippines was instituted by the office of the public welfare commissioner at Manila. In order to prevent these children from contracting leprosy from their parents they are removed from the colony and placed in institutions or private homes. By January, 1926, 285 children under 15 years of age had been removed. The youngest children are cared for in a public nursery near Culion, and if it is not possible to place the older ones with relatives or friends they are put in institutions where their care can be supervised by the office of the commissioner. Periodical health examinations are given to detect any early signs of leprosy which may appear. School training is provided and, as far as possible, the children are being prepared for happy, useful lives. They are encouraged to correspond with their parents, who are advised by monthly reports from the institution of their progress. This correspondence is deemed safe, since all letters sent from the leper colony are

thoroughly disinfected. The discovery of a cure for leprosy makes possible the hope that the children may eventually be restored to their parents.—*Journ. of Missouri State Med Assn.*

Reports of Institutions for Feeble-Minded and Epileptics—The extent to which provision has been made for the institutional care of feeble-minded and epileptics is perhaps best indicated by the number of patients in the institutions on a given date. In the thirty-six states covered by this statement the number of feeble-minded and epileptic patients under institutional care shows a steady increase, as indicated by the figures for the dates at the beginning and the end of the two most recent years for which data are available, which are as follows: January 1, 1922, 39,596; January 1, 1923, 42,164; January 1, 1926, 49,788; and January 1, 1927, 52,043. The number of such patients under care per 100,000 of the general population increased from 47.0 on January 1, 1923, to 54.7 on January 1, 1927. For the most part the figures for the individual states show similar increases.—Department of Commerce Announcement.

An Expensive Smallpox Epidemic—A smallpox outbreak of 773 cases in Monmouthshire, England, reported in *The Medical Officer* for May 7, cost that municipality £10,000 for capital expenditure and equipment and £13,000 for the maintenance of two hundred beds for six months. In American money the total cost amounts to about \$112,000. The county medical officer, commenting on the outbreak, states that his position has not been rendered any easier by the opposition of an ill-informed and foolish section of the public, aided and abetted by the poisonous literature assiduously distributed through the post by spurious medical experts whose contribution to this epidemic will mean increased suffering and disfigurement and the expenditure of thousands of pounds unnecessarily.—*Colorado Med.*

University of California Study Adds to Medical Facts—As a result of a study just completed by Dr. Charles Atwood Kofoid, professor of zoology at the University of California, additional facts concerning the intestinal ameba or germs causing tropical dysentery and several common disorders of temperate climates have been uncovered which are of great importance in the diagnosis of infected cases and which will possibly aid in the eventual discovery of a cure.

Doctor Kofoid discovered that one type or species of ameba, which has been masquerading under the name *Endomeba dysenteriae*, is really of a different genus or classification and forms a separate species itself. Doctor Kofoid has given this new germ the name *Councilmania dissimilis*, to conform with the genus *Councilmania*, which he established several years ago, and of which *dissimilis* is the third species found.

In the bulletin on the subject just issued by the University Press, Doctor Kofoid explains that the new species is very similar to the pathogenic *Endomeba dysenteriae* in structure, but it has many differences disclosed by careful examination, particularly in its reproductive method.

A search for possible clinical and cultural differences between the *E. dysenteriae* and *C. dissimilis* is now being made, but at present its relation to the disease is problematical. In speaking of the proportion of the new germ to the *E. dysenteriae*, Doctor Kofoid said that not less than 25 per cent of the material studied was composed of *C. dissimilis*, and it occurs certainly with sufficient frequency to enter into problems of microscopical determination of specific infections.

Doctor Kofoid recognized the difference between the two types of amebae years ago, but has waited to verify his results. He has made as many as 78,000 examinations of 25,000 persons in the course of his research on the intestinal amebae of mankind.

At the present time Doctor Kofoid is in Europe reading reports on his work, including this new dis-

covery among other things. He is attending a meeting of the British Medical Association, International Congress of Zoologists at Budapest and International Conference on Genetics at Berlin.

A hint of its possible practical use in future work on dysentery was brought out by a Dr. E. Rodenwaldt of Java, who asserts his belief that the newly described ameba is very much more common there than here and that it appears to be pathogenic or disease causing.

Doctor Kofoid was assisted in his studies by a number of graduate students, including Inez Smith, Dr. Olive Swezy, and Mrs. Dora Henry.

MEDICAL ECONOMICS

State Health Insurance—In England and in Austria

—Some recent reports have shown the trend which state health insurance takes once it is inaugurated. As indicating some of its effects upon members of the medical profession, the letter printed from the *Journal A. M. A.* from the column of its English correspondent, and the other item which appeared in one of the California newspapers, may not be without interest.

The letter concerning the status of state health insurance in England reads as follows:

March 12, 1927.

GOVERNMENT AGAINST STATE MEDICAL SERVICE

In accordance with their socialistic views, the Labor party is always demanding the development of the national health insurance system into a complete state medical service in which the physician would be simply a government official. The attitude of the government is shown in a speech by Sir Kingsley Wood, parliamentary secretary to the ministry of health, at the opening of a convalescent home. He said that there was an increasing demand for convalescent home treatment, which had undoubtedly proved of great benefit. As a result of the second valuation of approved societies, an annual sum of \$1,000,000 had been provided for convalescent home treatment and, in addition, nearly \$1,500,000 a year for payment to hospitals. No fewer than 2200 schemes, already approved by the ministry of health, included payments for members going into convalescent homes. The number of members covered by societies in those schemes was nearly 10,000,000. On the hospital question the government stood firmly by the voluntary system. One of the best signs of the time was that during the last two years the voluntary hospitals had demonstrated their vitality. The government was wholly opposed to the creation of a state medical service. It would not be in anybody's interest to take the work done by the physicians of the country and put it in the hands of whole-time public servants. Nothing would be gained and much would be lost. Sickness was costing the nation a huge sum, and most of it was preventable. The nation should give more encouragement and recognition to research work. "Prevention" must be the great watchword of all our health services.

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The newspaper dispatch (Los Angeles *Herald*, vi, 9, 27), on the Austrian situation follows:

VIENNA DOCTORS THREATEN STRIKE

Vienna, June 9.—Austrian physicians threaten to go on strike unless negotiations now under way with the government increase their income. The larger part of the Austrian population is organized in vocational "Krankenkassen," a sort of compulsory governmental health insurance, and "Krankenkassen" hire the physicians at a regular salary to attend the sick.

This salary, however, is as low as \$30 to \$45 a month. The unorganized population is so impoverished that it literally cannot afford to be sick enough to call a doctor; private practice is therefore small and not very lucrative.

The physicians now demand, first a raise of their "Krankenkassen" salary; second, exclusion from the

"Krankenkassen" of all those earning more than \$85 a month in order to create "private" patients.

* * *

If state medicine were inaugurated in America, similar experiences would probably result.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, *Secretary*

Mention has recently been made in the newspapers of another "fellowship in the American College of Chiropractors" conferred on a chiropractor who has recently been prominently featured in connection with the "sleeping beauty" case. Correspondence from one of the leading chiropractors in the United States criticizes the "American College of Chiropractors," relating: "This publicity misrepresents the value of the fellowship degree which the man pays \$50 to get, and all he gets is a code of ethics which he signs and promises to follow, which any person can get and sign and frame for a two-cent stamp. . . ."—*News Items*, February, May, 1926.

Paul Bauer, practicing naturopath of Sacramento, has been cited to appear before the Board of Medical Examiners at the October meeting to show cause why his license should not be revoked based upon treatment given to Mrs. Anna Hoffman, a Sacramento woman who died August 6.

Dr. Frank Brigham, 42, prominent local physician, yesterday pleaded not guilty before Municipal Judge Guy Bush to a charge of possessing liquor, and his jury trial was set for September 19. The physician attracted the attention of Policeman McRae last Friday when at Western Avenue and Jefferson Street he refused to permit other autoists to pass his machine. Forcing the defendant to the curb, Officer McRae said he discovered a pint of liquor in the machine. Following his arrest Doctor Brigham declared he had a permit to carry five gallons of alcohol. —*Los Angeles Examiner*, August 28, 1927.

A forecast of the 1928 general election relates that among the laws to be placed before the people will be one submitted by the Progressive Chiropractors' Association: "The proposed law will require chiropractors to have a high school education and the equivalent of a college education: *i. e.*, one year at a university and four thousand hours of instruction at a chiropractic college. It also will provide a jury trial in case of chiropractors who lose their license to practice, instead of permitting the State Board of Chiropractors to have full say, as at present. The amendment in addition will regulate chiropractic colleges as to requirements of education before pupils can be graduated, scientific laboratory and research equipment and requirements for chiropractic hospitals. . . ." —*Los Angeles Herald*, August 2, 1927.

Report of Special Agent Carter relates that on August 18 Georgia E. Day pleaded guilty in San Diego to a violation of the Medical Practice Act and was sentenced to pay a fine of \$100, suspended for two years on condition that she does not violate the Medical Act during that period.

According to an Associated Press dispatch dated Detroit, Michigan, August 13, published in the San Francisco *Examiner*, August 14, "a native-born German who claims to have served as a French spy during the World War was before authorities here today with the arrest of Carl H. Eifles, confessed impersonator of a Seattle, Washington, physician. He was arraigned on a charge of practicing medicine without a license. Eifles, who is said to have performed thirty major operations here, was held in the county jail in default of \$2000 bond after pleading guilty. Police declared that he is wanted in several

cities on charges ranging from issuing worthless checks to breaking jail." The Michigan Board of Medical Examiners relates a most interesting story about how this individual, using the name of a duly licensed practitioner, is reported to have obtained licenses to practice by impersonation. This is another practical demonstration of the necessity for extreme care in scrutinizing credentials of all applicants for a license to practice.

Our Investigation Department recently had occasion to look into the activities of Ernestine Englehardt, who poses as a cancer specialist in Oakland, using in her advertising matter the prefix "Dr.," she having no authority to treat ailments of the human system under the Medical, Osteopathic, or Chiropractic boards.

J. Paul Fernel, M. D., whose reciprocity application based on his Illinois credentials, was denied by the Board of Medical Examiners at the June meeting, based upon our investigation of his record in Illinois and Michigan, recently brought a writ of review in the courts of Los Angeles in an endeavor to set aside the board's action. The Superior Court sustained the board, and his attorneys have again appealed.

George E. Hall, who has been practicing chiropractic work at Camp del Dios, where he resided, was fined Tuesday in San Diego for practicing without a license. The judge assessed a \$50 fine. Hall's operations in this section were investigated by George M. Wynne, special agent of the State Board of Chiropractic Examiners.—*Escondido Times-Advocate*, August 18, 1927.

Dr. George Jarvis, 240 Stockton Street, was arrested last night after he is alleged to have failed to make a report to police of a stabbing affray in a hotel at 702 Vallejo Street. . . .—*San Francisco Examiner*, August 13, 1927.

William Lorimer Jones, M. D., of Oakland has been cited to appear before the board at the October meeting to show cause why his reciprocity license to practice in the state of California should not be revoked, based upon a narcotic charge in the state from which he came.

According to the report of our Special Agent Carter, Clarence M. King, a licensed chiropractor of San Diego, recently pleaded guilty in San Diego to a charge of violation of the Medical Practice Act and was sentenced to six months in the county jail, sentence being suspended for two years on condition that he does not violate the Medical Practice Act. He also pleaded guilty to a charge of violating the State Poison Act, having hypodermic needles in his possession, and was fined \$25. Complaint was also filed against him for violating the State Poison Act, having morphin in his possession, to which he also pleaded guilty and was sentenced to one year in the county jail, sentence being suspended on condition that he not violate the State Poison Act for a period of two years. Commenting on this, the *Ramona Sentinel* of August 26, 1927, relates: "The alleged offenses were committed merely in a desire to serve his patients and constituted a technical violation of the law that was not important and without any intention of wrongdoing."

William McBride, 29, who is said to have posed as a physician and to have stolen large quantities of narcotics from a score of drug stores, is today awaiting prosecution on charges of burglary and violation of the Narcotic Act. Deputy Sheriffs Brooks and McDermott, who arrested McBride, allege he posed as a doctor and thus was permitted to go behind drug-store counters in order to write "prescriptions." While behind the counters he would rifle the narcotic cabinet, the officers declare. McBride used this method,

it is charged, in the drug store of E. E. Busby at 3029 Whittier Boulevard, but was surprised in the act by the druggist. After a struggle Busby succeeded in holding McBride until Deputy Sheriffs Brooks and McDermott arrived.—*Los Angeles Record*, September 2, 1927.

According to the reports of our Investigation Department, M. James McGranaghan, licensed chiropractor, exonerated by the coroner's jury in September of last year in connection with the death of 6-year-old James MacManus, under anesthesia, and shortly thereafter charged with violation of the Medical Practice Act, was on August 18, 1927, held to answer by Police Judge Daniel S. O'Brien, pending trial in the Superior Court. The board holds that a licensed chiropractor has no authority to give anesthetics, we knowing of no chiropractic school which gives any instruction in anesthesia.

A citation has been issued calling Frank P. Moran, M. D., before the board at the October meeting to show cause why his license to practice in California should not be revoked, based upon a narcotic conviction.

A citation has been issued calling Milton A. Nelms, M. D., before the board at the October meeting to show cause why his license to practice in California should not be revoked, based upon a narcotic conviction.

A citation has been issued calling Ralph Newcomb, M. D., before the board at the October meeting to show cause why his license to practice in California should not be revoked.

According to a press dispatch dated Angels Camp, September 6, published in the *Stockton Record* of the same date, "Deputy Coroner John H. Carley filed a complaint in Justice C. H. McClory's court Saturday afternoon charging Dr. George F. Pache with refusing to appear as a witness at a recent coroner's inquest. . . . Sheriff Zwinge, who subpoenaed the doctor to appear at the hearing, reported to Coroner Carley that Pache refused to come, stating he would come when he got good and ready. . . . Pache appeared at the hearing after the inquest was over."

Daniel F. Royer, M. D., has been called before the board at the October meeting to show cause why his license to practice in the state of California should not be revoked, based upon his narcotic activities.

Our attention has recently been called to an advertisement of Willard Saulls in the Los Angeles papers, relating "Cancers drawn out. No return. Ninety per cent successful. Booklet free. See or write Dr. Saulls, 728 South Hill." Just how this licensed chiropractor expects to "draw out" cancers is left to the imagination.

Complaint was recently filed in Brawley charging Remedios Salcida with violation of the Medical Act.

A citation has been issued calling John H. Seiffert, M. D., of San Diego before the board at the October meeting to show cause why his license to practice in the state of California should not be revoked.

Recent report alleges that William Shore, M. D., of Ventura, who was placed on one-year probation following his hearing at the June meeting of the board, is alleged to be sought by the sheriff of Ventura County on a charge of passing bad checks.—"News Items," February, March, July, and September, 1927.

An alleged doctor by the name of De Nelson Smith is now under trial in the courts of Los Angeles on a charge of administering poison to Peter R. Gonsett, a French-Canadian inventor.

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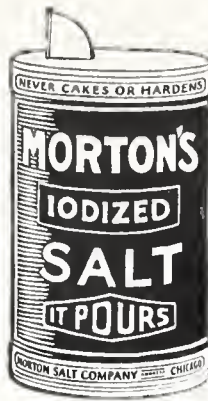
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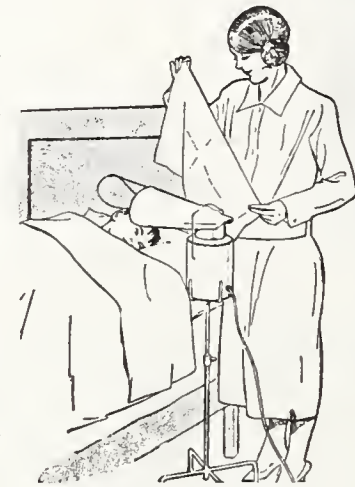
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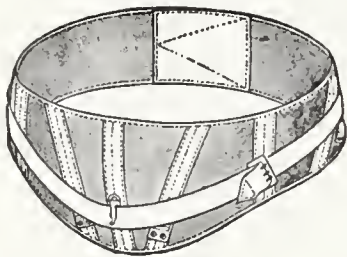
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Through a committee appointed by the American Association for Medical Progress, Kissinger has been deeded a home in Huntington, Indiana, which will relieve him from the poverty in which his voluntary illness has left him.

While serving as a private in the army in Cuba, Kissinger allowed Doctor Reed to experiment with him to the end of checking yellow fever, which had gripped Central and South America. Kissinger was isolated and Doctor Reed caused him to be bitten by an infected aedes mosquito.

Kissinger contracted yellow fever and lived through its ravages to prove the theory that the mosquito was the transmitting agent. The ordeal left him a cripple. —*Boston Herald*.

Teach Children Control of Emotions, Urged—"The tendency of a small group of writers to preach the doctrine of self-expression means allowing children to follow impulse. We eugenists should and do oppose it," declared Dr. Charles W. Burr, neurologist of Philadelphia, in a report to the American Eugenic Society here.

The importance of teaching children to control rage, fear, and other emotions was stressed by Doctor Burr as a means of race improvement.

"Emotions are more fundamental in character formation than is pure intellect," he said. "Some children cannot be taught to control their impulses, and a few, even under a bad environment, will develop healthily. But the mass can be trained."

Self-expression allowed to run riot is dangerous and ends in trouble, he said.—*Bulletin of the Wayne County Med. Soc.*

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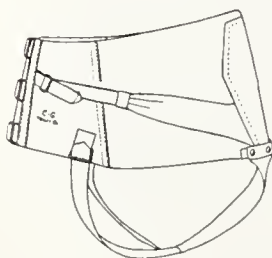
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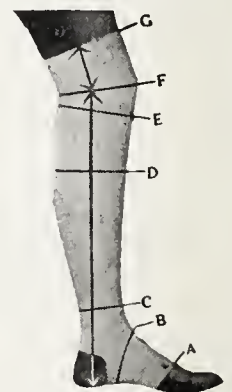


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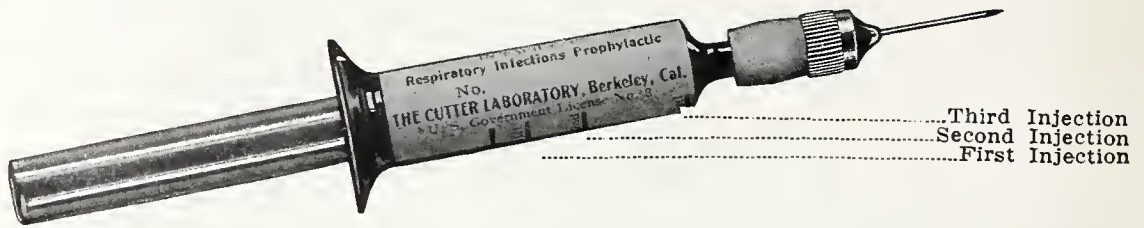
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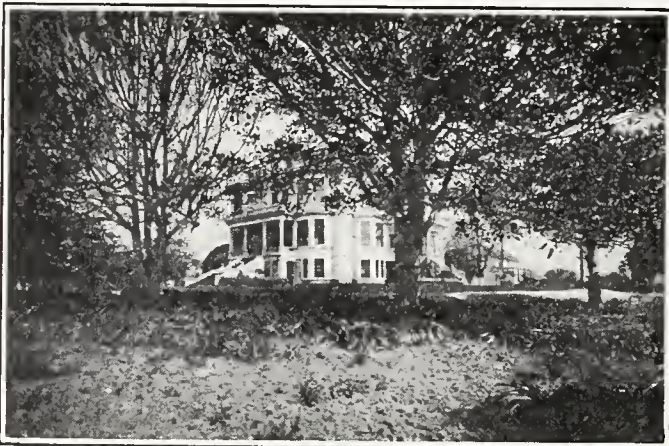
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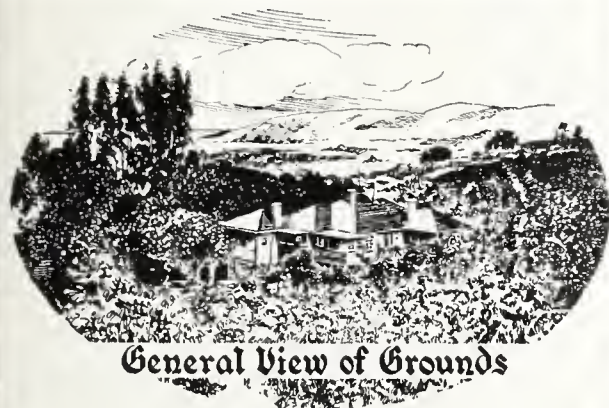
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Hookworm Menace Ended—Hookworm disease has almost disappeared in the United States and is rapidly coming under control in many other parts of the world, according to the annual report of the International Health Board of the Rockefeller Foundation.

Another ailment that is surrendering to the vigilance of the Foundation research experts and its staff in the field is malaria, the transmission of which has been traced to a single type of mosquito.

The experts, having controlled yellow fever more or less successfully in the municipalities, have now struck into the interiors of the countries where the disease has been prevalent. An epidemic in the interior of Brazil was traced to the activities of a band of rebels which worked its way in the old fever zone from southern Brazil.

"The diseases that the board has chosen for special

attention," the report set forth, "have been world-wide in their distribution and of great economic importance. Field research in the epidemiology of hookworm disease has advanced knowledge concerning the life history of the hookworm, both in its free-living larval form and in its adult relationship to the host.

"At the present time it is fair to say that hookworm disease has almost disappeared from the United States and is rapidly coming under control in many parts of the world. But the great achievement is not the social and economic rehabilitation of the more than 6,000,000 or 7,000,000 people who have been treated for the disease during the past ten or fifteen years; it is the development of administrative measures that will prevent millions yet unborn from ever suffering its ravages."—*Bulletin of the Wayne County Medical Society.*



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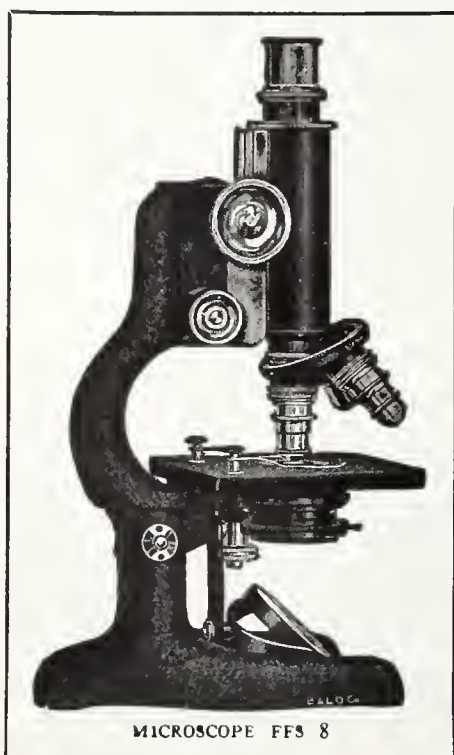
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"Can a man build a flying machine that has more endurance than his own body? Can a creation of man's brain outstrip its creator? Major Louis H. Bauer, Medical Corps, United States Army, expert on aviation medicine, thinks the mechanically possible may be the physically impossible. A speed may yet be attained which will not allow a turn to be made. Even if the plane can stand it, pressure on the stem of the brain caused by a sharp curve may cause death. He thinks it is doubtful if man will be able to withstand a speed of much over 300 miles an hour on sharp turns. A flyer may be able to withstand straight-ahead spurts at much higher speed. The question is yet to be answered. Lieutenant James H. Doolittle of the army probably acquired a speed of 350 miles or more when he recently accomplished the amazing feat, an outside loop. He learned more about the physical effects of terrific centrifugal force than even crack pilots care to learn. He is said to have described how his eyeballs were so extended that they touched the goggles. Although it has not yet been tested in the airplane, Lieutenant Williams' new engine has already developed 1000 horse-power. It is a Packard 1200 horse-power motor and has twenty-four cylinders built in the X-type. What Lieutenant Williams is going to do with it is a different, if not a greater, feat than straight distance flying over oceans and deserts. Any good flyer, according to one of them, can fly a good plane anywhere. If he starts to race, he must learn all over again. The ordinary flyer pulls the stick and climbs a nice slope. If a racer just thinks of pulling the stick he is liable to shoot up at a tremendous speed.—*The Literary Digest*.



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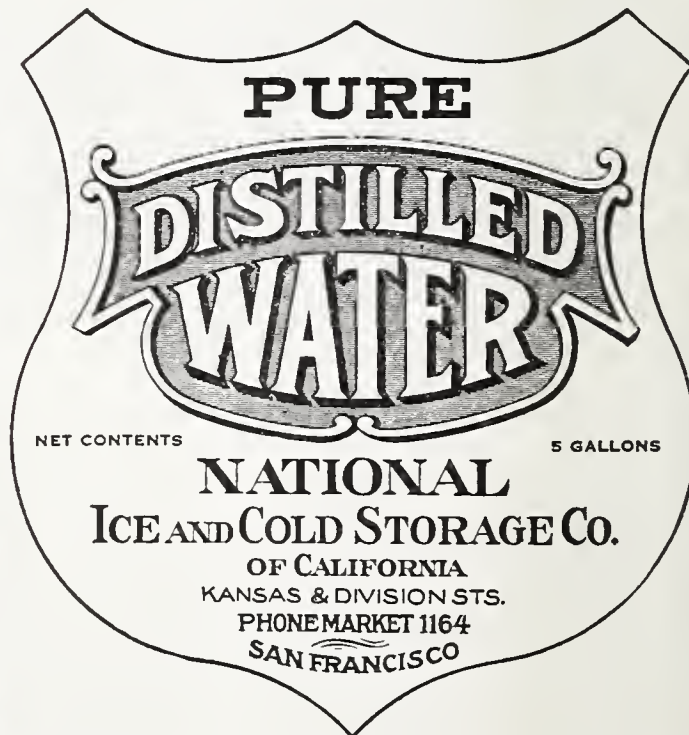
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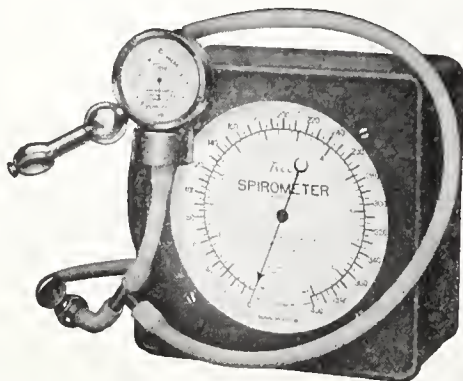
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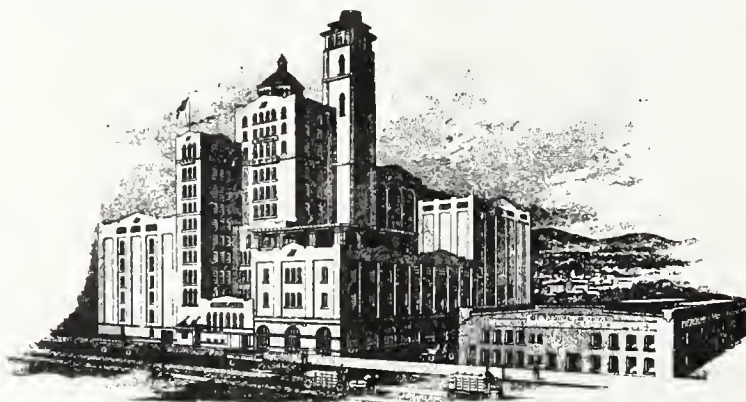
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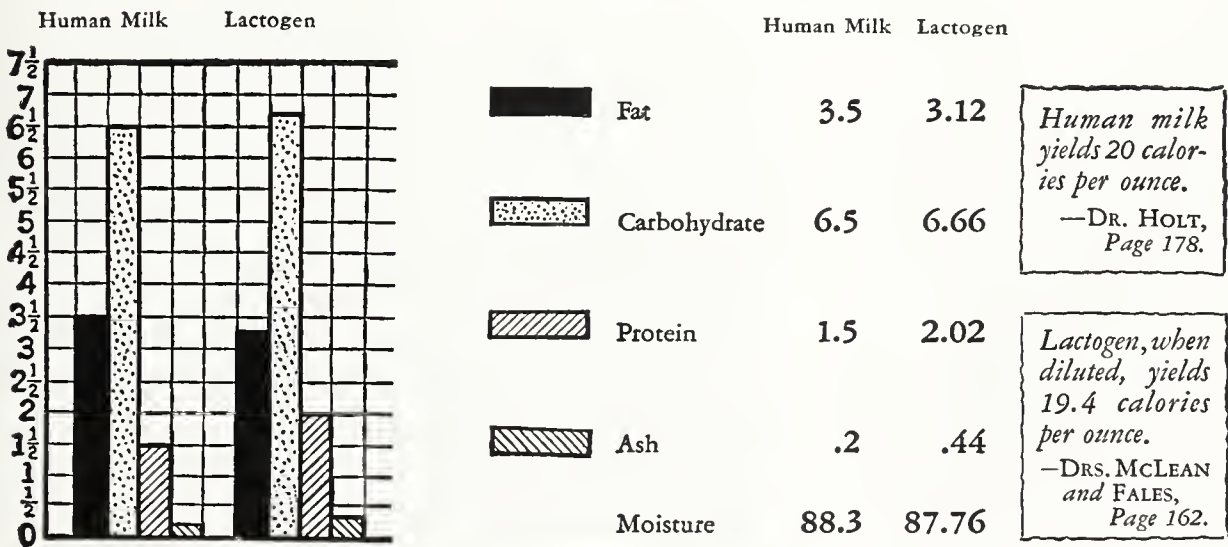
milk."—by Henry Dwight Chapin, A. M., M. D., *Ex-President of the American Pediatric Society* and Lawrence Thomas Royster, A. M., M. D., *Professor of Pediatrics of the University of Virginia*, "Diseases of Infants and Children," page 136.

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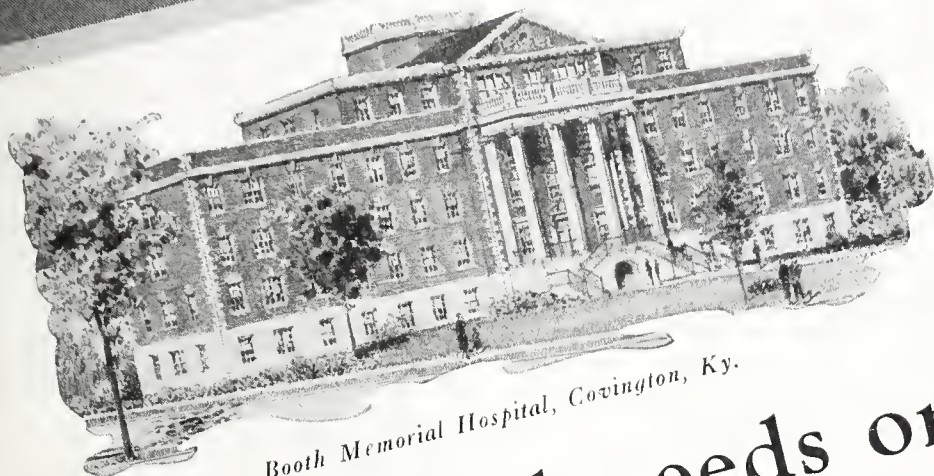
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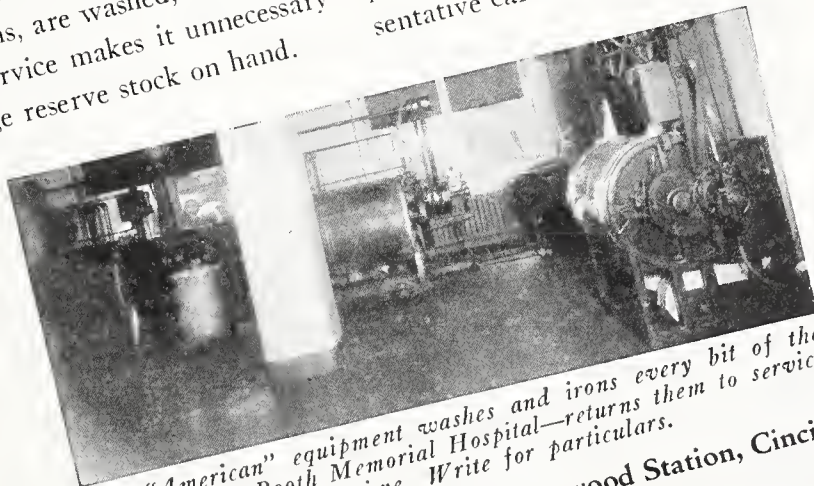
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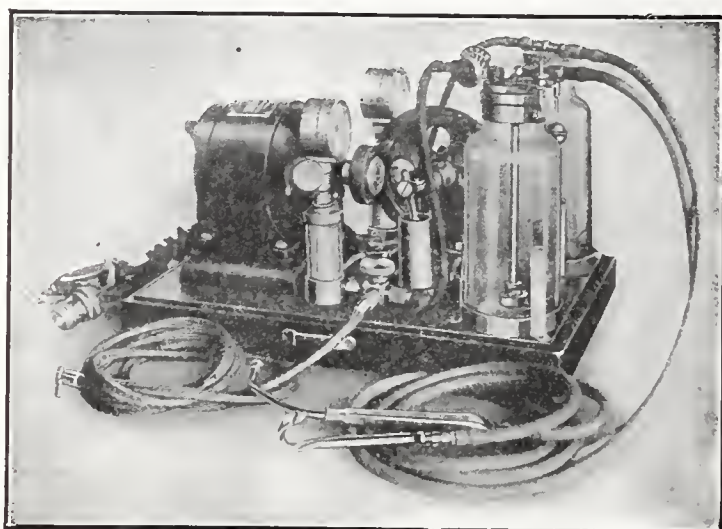
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Horlick's Milk Modifier, a new product made by the Horlick's Malted Milk Corporation, Racine, Wisconsin, is now being introduced to the medical profession. This maltose and dextrin product, which is derived exclusively from malted grains, was first announced at the annual meeting of the American Medical Association in Washington, D. C., in June, and created much interest. Since that time it has been presented to convention gatherings in other parts of the country, and the Horlick representatives are now calling on individual members of the profession.

Horlick's Milk Modifier is presented and supplied to the profession along ethical lines. No feeding directions accompany the package. A statement on the wrapper is to the effect that the product is for prescription by physicians only.

In conformity with the Horlick policy, the Milk Modifier is put up in hermetically sealed glass jars only. The one-pound size retails at 75 cents, and the five-pound jar at \$3. The fact that it carries the name "Horlick's" is a guarantee that only the finest materials are used.

In the June 18 issue of the *Journal of the American Medical Association*, under the heading of New and Nonofficial Remedies, the acceptance of the Horlick Milk Modifier was announced by the American Medical Association. The product differs from the malt sugars in that it incorporates soluble and readily assimilable protein and valuable mineral salts from the grains. The Horlick firm points out this fact as a decided advantage for its product.

Another point which is mentioned as an advantage in favor of the new product is the proportion of its two chief carbohydrates, maltose and dextrin, which are 63 per cent maltose and 19.5 dextrin.

The new Horlick formula apparently has met with pronounced success during a period of trial among physicians in Canada.

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The Tombs of Illustrious Physicians—As an echo of the centennial celebration in honor of Laënnec, a committee has been appointed in Paris to collect by subscription a fund with which to provide for the upkeep of the graves and tombs of famous physicians. In the large Père-Lachaise cemetery in Paris, the tombs of medical celebrities are so covered with moss that the names of the deceased can scarcely be deciphered. The various medical associations have agreed to subscribe to an endowment fund which will be used for the purpose cited.—*Canadian M. A. J.*

Signs of Poliomyelitis—Signs of the disease, as set forth by the State Department of Health, follow:

"Paralysis is not the first sign of the disease. We are justified in making a provisional diagnosis of poliomyelitis in child or adult if the following symptoms are presented: abnormal dullness or unusual excitability, stiffness of the neck or spine shown by the patient if he sits up in bed with feet extended and suffers pain; if the head is bowed forward so that the chin touches the chest or if the head is gently rotated. Incoordination, as stumbling, inability to walk steadily on the floor or upstairs, slight dropping of the foot, inversion or eversion of the toes. The presence of any eruption appearing like measles, scarlet fever or purpura, occipital headache, usually severe. To sum up: (1) rise in temperature, pulse, and respiration; (2) unusual dullness or irritability; (3) muscular incoordination; (4) stiffness of the spine; (5) headache; or (6) slight or severe paralysis. These symptoms, whether accompanied by rashes or not are sufficient evidence to warrant a provisional diagnosis of poliomyelitis."—*Ohio State M. J.*

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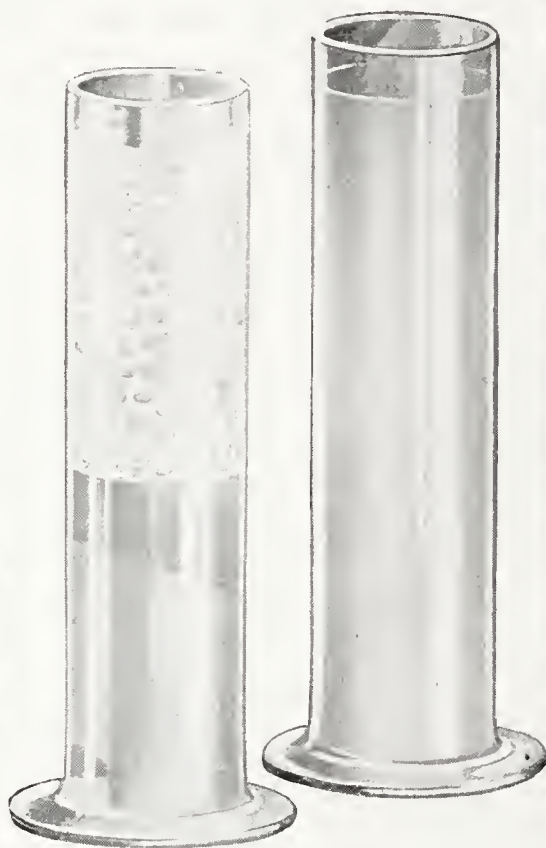
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Executive Efficiency an Important Factor in Law Enforcement—In the May and June issues of the *Bulletin* appear two interesting experiences in the enforcement of medical practice acts in the articles by Doctor Rypins of the New York board and by Doctor Crowe of the Texas board. New York and Texas may both be regarded as empire states, the former in population and the latter in acreage. While the problems of law enforcement are fundamentally similar, the conditions peculiar to each state evidently require a somewhat different procedure to accomplish results.

The primary essential in New York is the harmony of action centered in the education department which controls the educational requirements, the licensing and professional conduct of physicians, and the prosecution of illegal practitioners. The most effective factor in New York has been the annual registration of physicians which is regarded as the *sine qua non* for enforcing a Medical Practice Act. It has permitted better investigations, has more quickly drawn attention to illegal practice and has permitted a better selection of cases for prosecution.

In Texas the successful enforcement of the Medical Practice Act has depended largely on an extensive campaign of publicity regarding proper licensure requirements, for which the state medical society provided the necessary funds and lent its enthusiastic support at all times. This educational movement has made it possible not only to educate the public, but also to bring to the legislator a higher conception of his duty to provide laws for the proper protection of the health of his fellow citizens.

The successful results recorded by these two experiences indicate a very high degree of efficiency on the part of the executive officers concerned. They have each made a distinct contribution to the higher standards of medical licensure and reflect great credit on the important work in which they are engaged.—*Federation Bulletin.*

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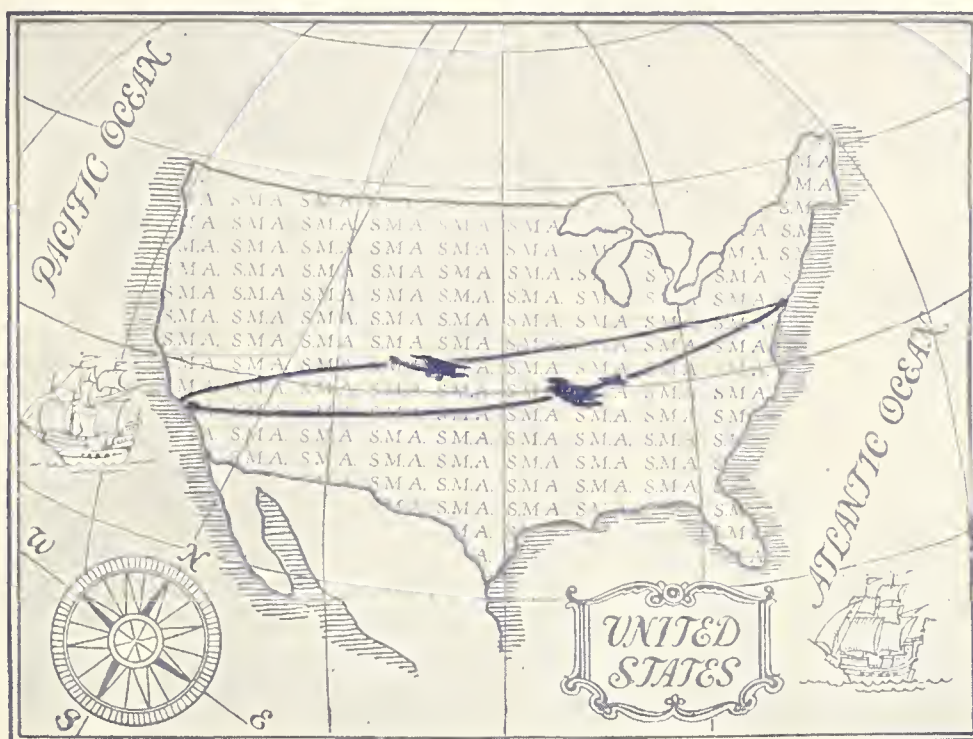
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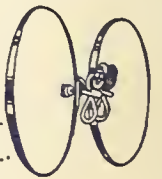
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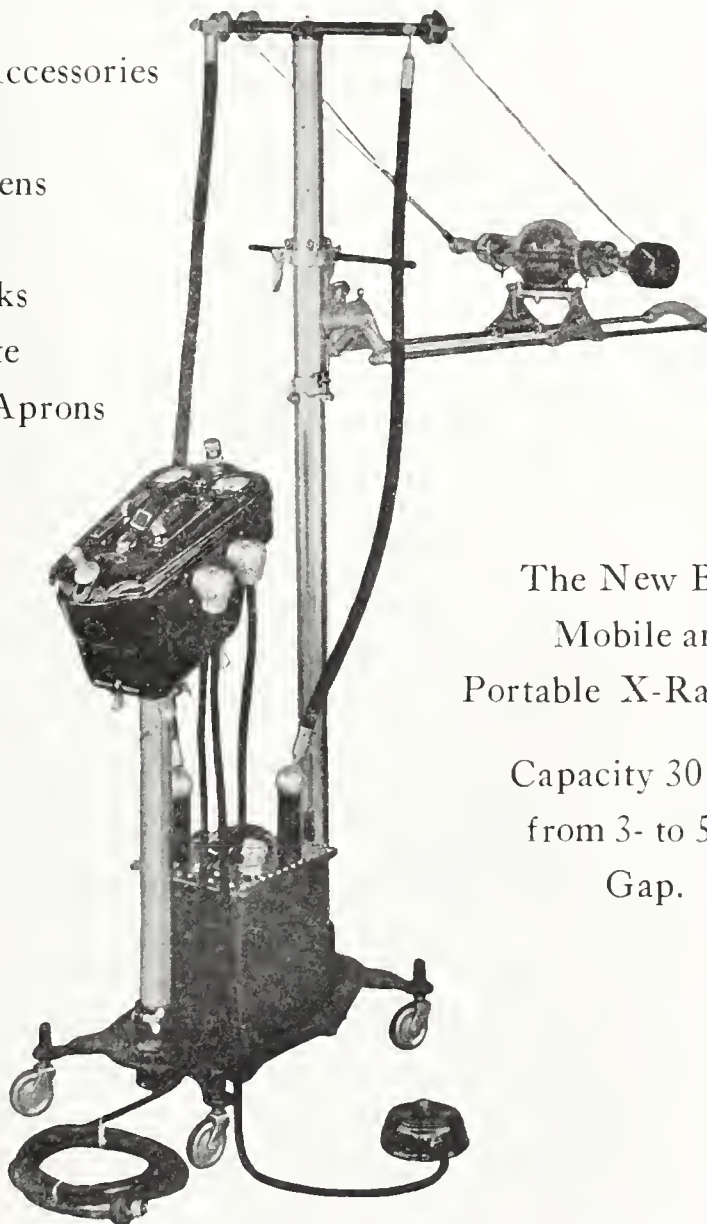
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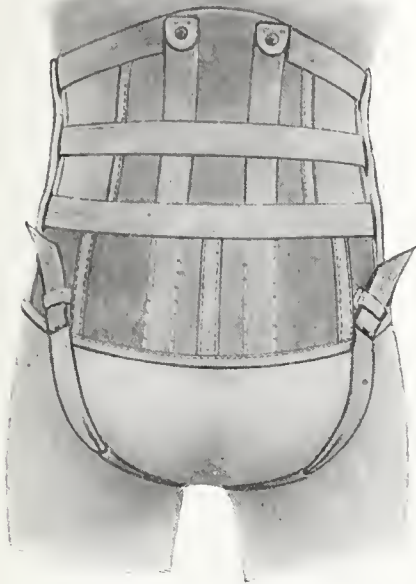
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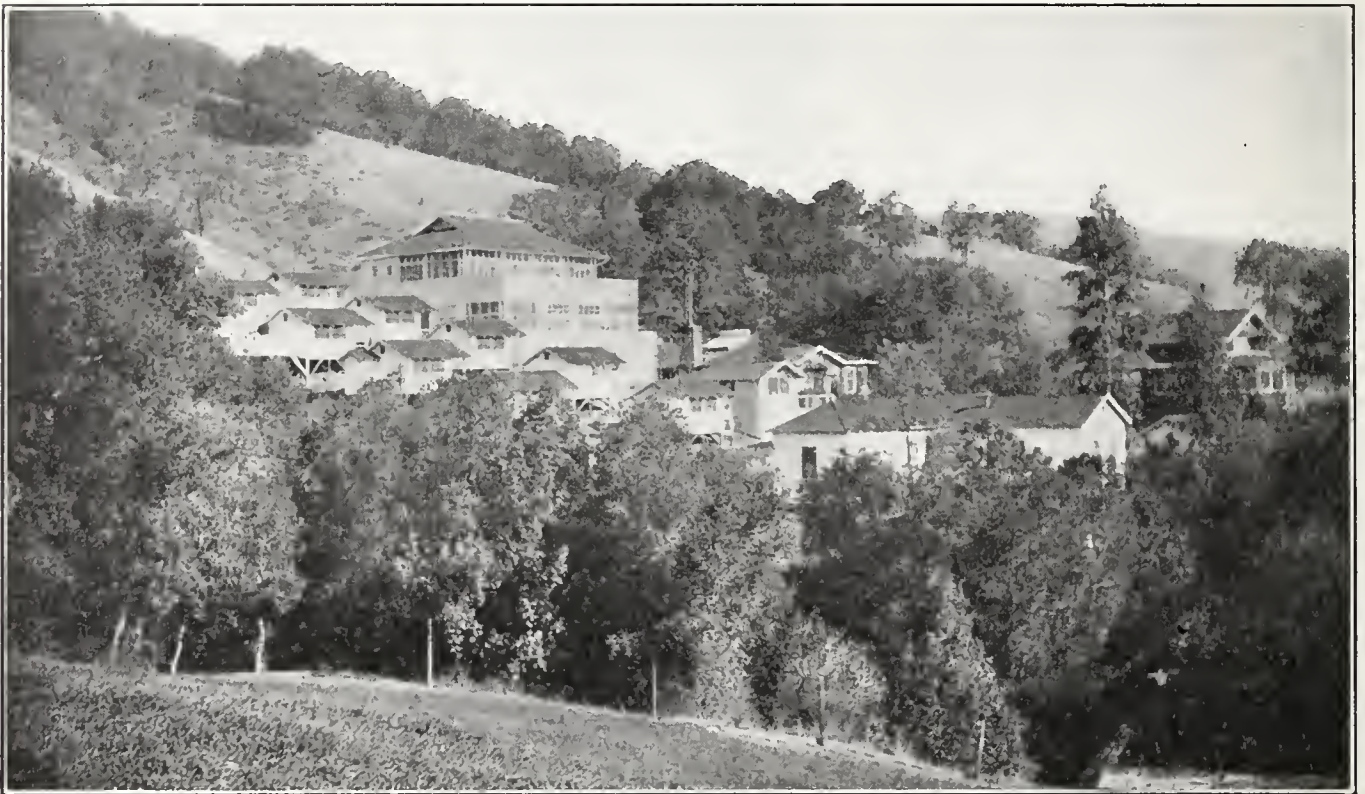
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A Treatise on Orthopedic Surgery. By Royal Whitman, M.D. Eighth edition, thoroughly revised. Review copy by courtesy of the publishers, Lea & Febiger, Philadelphia.

A Manual of Materia Medica and Pharmacology. By David M. R. Culbreth, M.D. Seventh edition, thoroughly revised. Review copy by courtesy of the publishers, Lea & Febiger, Philadelphia.

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Blood-Pressure: Its Clinical Applications. By George William Norris, M.D., Henry Cuthbert Bazett, M.D., and Thomas M. McMillan, M.D. Fourth edition, thoroughly revised. Review copy by courtesy of the publishers, Lea & Febiger, Philadelphia.

Cancer Control. Report of an International Symposium Held Under the Auspices of the American Society for the Control of Cancer, Lake Mohonk, New York, September 20-24, 1926. Review copy by courtesy of the publishers, The Surgical Publishing Company, Chicago.

The Antisterility Vitamin Fat Soluble E. By Herbert McLean Evans and George O. Burr, with the assistance of Theodore L. Althausen. Memoirs of the University of California. Volume 8. Review copy by courtesy of the publishers, University of California Press, Berkeley.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Vol. III. Thirty-seventh series, 1927. Review copy by courtesy of the publishers, J. B. Lippincott Company, Philadelphia.

Principles of Solution and Dosage. By Ann Blumenthal, R.N. Review copy by courtesy of the publishers, The Macmillan Company, New York.

Cultivating the Child's Appetite. By Charles Anderson Aldrich, M.D., with a Foreword by Clifford G. Grulee, M.D. Review copy by courtesy of the publishers, The Macmillan Company, New York.

The Ship Sails On. By Nordahl Grieg. Review copy by courtesy of the publisher, Alfred A. Knopf, New York.

Fistula of the Anus and Rectum. By Charles John Drueck, M.D. Review copy by courtesy of the publishers, F. A. Davis Company, Philadelphia.

Feeding and the Nutritional Disorders in Infancy and Childhood. By Julius H. Hess, M.D. Fifth revised and enlarged edition. Review copy by courtesy of the publishers, F. A. Davis Company, Philadelphia.

Surgical Diseases of the Gall Bladder, Liver, and Pancreas and Their Treatment. By Moses Behrend, M.D. Review copy by courtesy of the publishers, F. A. Davis Company, Philadelphia.

Modern Medicine: Its Theory and Practice, in Original Contributions by American and Foreign Authors. Edited by Sir William Osler, Bart. M.D., F.R.S. Third edition, thoroughly revised, re-edited by Thomas McCrae, M.D., assisted by Elmer H. Funk, M.D. Volume 5. Diseases of the Blood; Diseases of the Lymphatic System; Diseases of the Ductless Glands; Diseases of the Urinary System; Vasomotor and Trophic Disorders; Diseases of the Locomotor System. Review copy by courtesy of the publishers, Lea & Febiger, Philadelphia.

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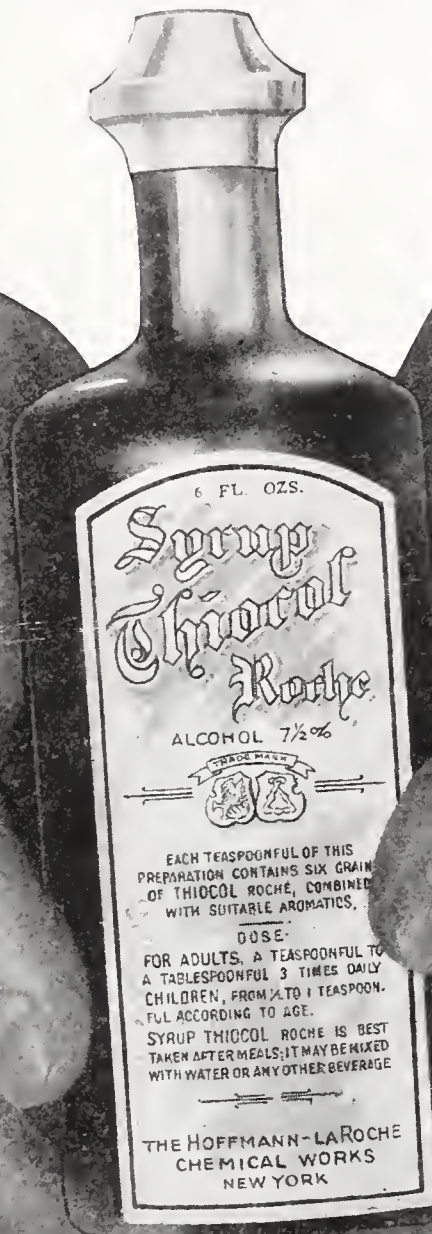


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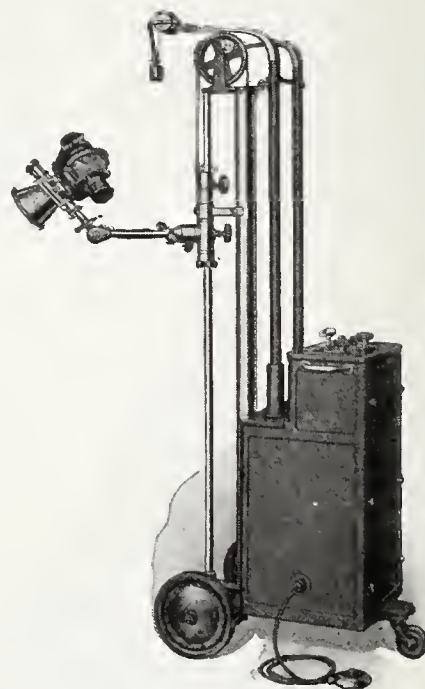
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BOOK REVIEWS

This column is conducted solely in the interests of California and Western Medicine readers. Critical comment, favorable and unfavorable, purely from the standpoint of the interests of the medical reader, will be made about books selected from the larger number acknowledged in the Books Received column. The advertising columns are open to book publishers who wish to make additional statements about their publications.

A Manual of Gynecology. By John Osborn Polak. Third edition. Pp. 402. Illustrated. Philadelphia: Lea and Febiger, 1927.

In the third edition this excellent manual has been brought up to date. This book is so well known that it recommends itself. The very best praise one can give it is that it does not pretend to be anything but a manual. As such it has few equals in the gynecological literature. Being concise it is most valuable for the medical student and the busy practitioner. In reading the chapters on sterility and on endocrine relations the reviewer is impressed with the clear and sane discussions of these subjects. Among the shorter treatises on gynecology Polak's manual stands out prominently.

Practical Otology. By Morris Levine. Pp. 387. Illustrated. Philadelphia: Lea & Febiger, 1927.

This book is by far the most practical volume on the ear which has come to my notice. It is written in very readable language, covering the subject fully from a practical standpoint. No space is given to obsolete methods and treatments, the volume containing only 387 pages.

In describing operative technique the author gives only the one operation which he prefers and does not fill his book with arguments for this or that other method. Many cuts, diagrams and photographs make his descriptions very clear. The ear specialist will find this volume an excellent outline for a lecture course as well as a very valuable reference book.

Gynecological Diagnosis and Pathology. By A. H. F. Barbour and B. P. Watson. Third edition. Pp. 223. Illustrated. New York: William Wood & Company, 1927.

On the occasion of Professor Watson's transference to the faculty of Columbia University, the third edition, published in 1922, has been reprinted.

It is most deplorable that it has not been brought up to date in this edition. This is not said to depreciate the

book because as such it is as valuable as ever. Nevertheless one misses discussion on endometritis, transplantation cysts, sterility, and newer aspects of the genesis of ovarian cysts.

The book is recommended as valuable for quick reference.

Health Supervision and Medical Inspection of Schools.

By Thomas D. Wood and Hugh Grant Rowell. Pp. 737. Illustrated. Philadelphia and London: W. B. Sanders Company, 1927.

This book contains over 600 pages of comprehensive survey of work being done to conserve the health of the school child. It is clearly and concisely written, is amply illustrated with charts, sample forms and records from many sources. The material is readily available for reference by the orderly separation under subject headings and by a very full subject index.

The history is given of the development of school health work, the organization and administration of the system necessary, the cost of the health program, and the salary standards.

Further chapters treat with the control of communicable disease including prevention with diphtheria toxin-antitoxin, vaccine and the Dick prevention of scarletina, on health examination giving many forms of records, and on dental examinations.

The correction of defects is then taken up, much data being given to constructive plans of school feeding of underweights and the results achieved.

Special classes of defectives are discussed, those including the mental defectives, the deaf, the blind, cardiac patients, tuberculous and epileptic children. Finally the health education of the school child and adults, the care of the preschool child and of the youth in industry is reviewed. The book is valuable not only to nurses and physicians engaged in public health with children, but also to the physician in private practice who finds therein many helpful suggestions for the care of his youthful patients.

Fatigue in Children.

The question of fatigue in children is receiving more attention today than it has in the past. Pediatricians are calling the attention of parents to this subject more and more. It is not as though the children become tired from their normal activities, but that too often they never seem to get enough rest. This is manifested in the preschool child by its irritability and nocturnal restlessness, lack of normal physical development and poor appetite. In the school child there is, in addition, the so-called fatigue posture on standing, with the abdomen relaxed,

(Continued on Page 608)



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BOOK REVIEWS

(Continued from Page 606)

shoulders slouching, a tendency to lean on objects for support and vague subjective symptoms as aches and pains, poor appetite and night restlessness. Max and Greta Seham in their work "The Tired Child" have discussed this subject very thoroughly from the scientific standpoint, putting their observations in plain language for the layman.

It seems timely in the midst of the hurry and rush of our daily lives to pause for a moment and think of the future of the young who are entrusted to our care. Are they being so hurried and rushed by parents and teachers in their daily lives that they are wearing out before they should? Is the mechanical age of rapid motion through the streets and roads of the country, the excitement of the motion pictures, the noises and turmoil of our cities, allowing the young who are born and being brought up in these surroundings, the chance that nature intended they should have?

The competition of life is not getting any easier as the years go by. We start in infancy with baby shows, competitive exhibitions like animal shows, seeking out "prize babies." The young parents want to take the baby for an automobile ride. Does the baby want it or is it for the pleasure of the parents? The preschool child starting at two years of age decides it does not want to take its daily nap. The mother does not insist. The long day of play brings the child to bed at night too tired to eat and sleep. It tosses all night, crying out frequently, and has occasional night terrors. Next morning the child wakens not refreshed but irritable and starts in on a repetition of the previous day. So it goes for days, with the result that the child never gets its needed rest. The older child of four years is restless and wants to go to school. The mother sends him to kindergarten to satisfy him and at the same time to get him out from underfoot so that she will have more time for other activities. What is the result? Overstimulation of the young, easily impressed nervous system, which has a bad effect on the appetite and sleep. So on into the older school life.

By the time the child reaches puberty this lack of rest shows in the weight and sometimes the height. Though often these children will be tall enough, their weights do not come up to what the height calls for.

The foregoing does not apply, however, to all the children of our communities. We find that, due to the teachings of their medical advisors, many parents are realizing that their children need rest and proper food and avoidance of overstimulating activities. These parents have, as a result, children who are more nearly normal and many of whom are above normal.

What must be done about it? It is up to the medical profession to teach conservation of nervous energy in the growing child. Give sane advice to the parents and teachers of the schools. If we would have wise adults of these children who are growing up around us to carry on the work of the future, sound bodies must be formed in early life in which, in turn, will develop sound minds.

The Sehams give much food for serious thought in their book. It may be perused by medical men with much profit.

TRUTH ABOUT MEDICINES

New and Nonofficial Remedies

(Abstracts from reports of Council on Pharmacy and Chemistry, A. M. A.)

Note.—These do not represent all of the actions of the Council, but they do represent those remedies manufactured by firms who cooperate with California and Western Medicine in its advertising columns, and thereby with the physicians in California.

In addition to the articles previously enumerated, the following have been accepted:

E. Bilhuber, Inc.—Bromural.

Parke, Davis & Co.—Diphtheria Toxin-antitoxin, 0.1 L + (P. D. & Co.).

Swan-Myers Co.—Capsules Ephedrin Hydrochlorid (Swan-Myers), 0.05 Gm.

Acetarsone (Abbott)—A brand of acetarsone (N. N. R.). For a discussion of the actions, uses and dosage of acetarsone, see New and Nonofficial Remedies, 1927, p. 83. This product is supplied in substance and in 0.25 Gm. tablets. Abbott Laboratories, North Chicago.

Erysipelas Streptococcus Antitoxin (Concentrated) Mulford—An erysipelas streptococcus antitoxin (New and Nonofficial Remedies, 1927, p. 337), prepared by injecting horses intradermally with strains of hemolytic streptococci isolated by H. Amoss from human cases of erysipelas lesions, bleeding the horses and when test bleedings show the serum to have reached the desired potency, separating the serum, sterilizing it, and preserving by the addition of 0.35 per cent of phenol. The product is then concentrated by a process which preserves both the antitoxic and antibacterial properties claimed to be in the original serum. The product is marketed in packages of one 20 cc. syringe. H. K. Mulford Co., Philadelphia.

Cholera Bacterin (Cholera Vaccine)—This cholera vaccine (New and Nonofficial Remedies, 1927, p. 358), is also marketed in packages of one 20 cc. vial containing 1000 million killed cholera vibrios per cc. H. K. Mulford Co., Philadelphia.—*Jour. A. M. A.*, September 10, 1927, p. 883.

Iodoxybenzoates—Iodoxybenzoic acid resembles salicylic acid, chemically differing in that the hydroxyl group of the latter has been replaced by an iodoxy group. The known actions of the salts of iodoxyben-

(Continued on Page 610)

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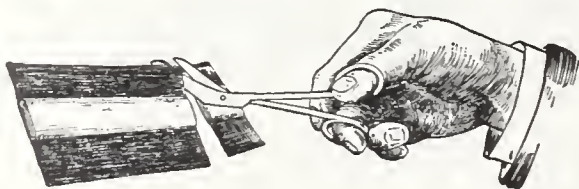
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TRUTH ABOUT MEDICINES

(Continued from Page 608)

zoic acid, as developed by investigators, led up to its clinical application by Young and Youmans in the treatment of arthritis. The investigators, in their introduction of the substance, used the sodium salt or ammonium salt prepared extemporaneously; later, they recommended the use of ammonium iodoxybenzoate. The salts of iodoxybenzoic acid are indicated chiefly in arthritis. They are reported to be preferably administered intravenously; however, for cases in which the drug cannot be given intravenously, oral administration and administration by high enema have been employed and found effective.

Amiodoxyl Benzoate—Ammonium O-iodoxybenzoate—The ammonium salt of 2-iodoxybenzoic acid. The latter differs from orthohydroxybenzoic acid (salicylic acid) in that the hydroxy group is replaced by the iodoxy group. It contains 42.7 per cent of iodine. For a discussion of the actions and uses, see the preceding article "Iodoxybenzoates."

Amiodoxyl Benzoate (Abbott)—A brand of amiodoxyl benzoate (N. N. R.). Abbott Laboratories, North Chicago.

Capsules Ephedrin Hydrochlorid (Swan-Myers), 0.05 Gm.—Each capsule contains Ephedrin Hydrochlorid—Swan-Myers.—*Jour. A. M. A.*, April 16, 1927, p. 1235; 0.05 Gm. Swan-Myers Co., Indianapolis.

Ephedrin Sulphate (Abbott)—A brand of ephedrin sulphate (N. N. R.). For a discussion of the actions, uses and dosage of ephedrin sulphate, see *The Journal A. M. A.*, March 19, 1927, p. 925. Abbott Laboratories, North Chicago.—*Jour. A. M. A.*, September 24, 1927, p. 1061.

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particularly liver—and containing an abundance of fruits and fresh vegetables and relatively low in fat. Koessler and his associates believe that in some cases, at least, the phenomena accompanying pernicious anemia are the result of long-continued deficiency in vitamin A and possibly also in vitamins B and C and propose the treatment of pernicious anemia with a high caloric diet rich in vitamins. Therefore Minot and Koessler would prescribe an adequate general diet, including a large quantity of liver and kidney. Minot and his co-workers would reduce the fats whereas Koessler and his associates declare that butter, cream, milk and cod-liver oil should be partaken of in large amounts. Macht reports that the blood serum of patients with pernicious anemia contains a toxin, and that this blood serum can be detoxified by irradiation with ultra-violet rays. Furthermore he found that the effect of ultra-violet rays should be increased by introducing into the serum to be treated dyes which act as sensitizers. Since liver is the storehouse for blood pigments, some of these pigments may help increase the effectiveness of light and thus some of the good effects of liver diet may be connected with the liver pigments that are administered.—*Jour. A. M. A.*, September 3, 1927, p. 793.

Phosphobion not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Phosphobion, manufactured by Dr. Theodor Koenig, Munich, Germany (Carl F. Lauber, Philadelphia, distributor), are pills, each stated to contain zinc phosphide, 0.0025 Gm., and iron glycerophosphate, 0.03 Gm. According to the advertising, Phosphobion represents a new treatment for sleeplessness. It is claimed that sleeplessness is caused by a deficiency of phosphorus in the organism and that the phosphorus in Phosphobion has the power of supplying this deficiency. No evidence is offered in favor of the theories on which the claimed action of Phosphobion is based, nor convincing evidence in favor of its

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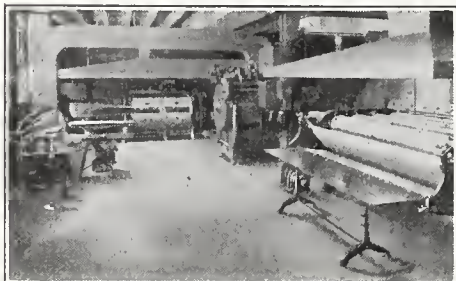
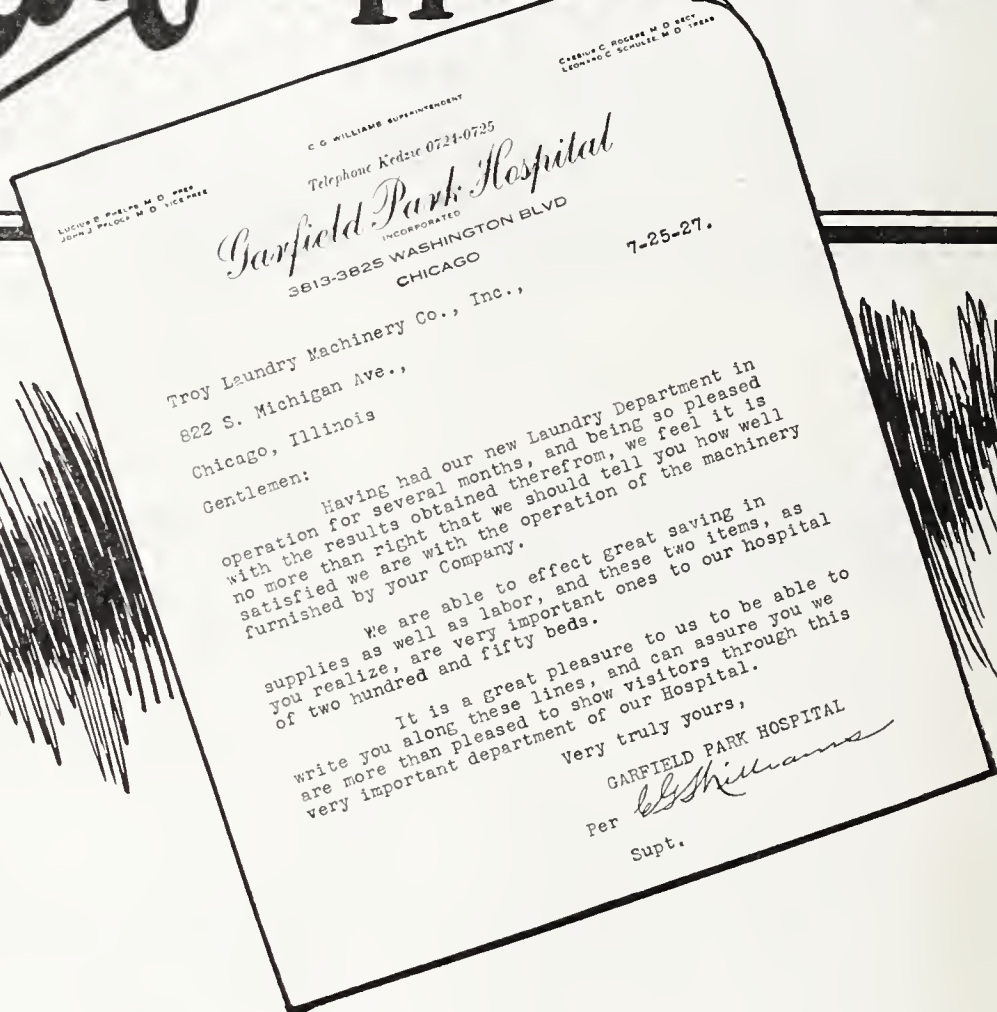
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claimed action. The Council found Phosphobion unacceptable for New and Nonofficial Remedies because it is an unscientific mixture of drugs marketed under a nondescriptive name with claims that are not supported by acceptable evidence and in a way to lead to its ill-advised use by the laity.—*Jour. A. M. A.*, September 3, 1927, p. 809.

The Standard Laboratories Fiasco—About thirteen years ago a concern known as the Truax Laboratories was operating in Chicago. Its method was to sell to dispensing physicians individual packages containing stock prescriptions. When the physician had spent \$100 with the Truax Laboratories, he received a "profit-sharing debenture of \$25." Later the name of the concern was changed to "Standard Laboratories, Inc.," and the methods of doing business were also changed. The Standard Laboratories, Inc., got dispensing physicians to deposit \$100 with it, which was to be "taken out" in drugs. When the doctor had

(Continued on Page 614)

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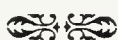
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TRUTH ABOUT MEDICINES

(Continued from Page 611)

bought \$100 worth of drugs he was issued a "\$25 de-
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time it would be accepted as stock in the company.
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ciation*, it was told that its methods were not such as
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of the profession. It was pointed out that the Prin-
ciples of Medical Ethics states that "it is unprofes-
sional . . . to accept rebates on prescriptions." Pat-
ently, the physician who held stock in the Standard
Laboratories or who shared in its earnings was, in
effect, accepting a rebate every time he prescribed
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lated by a small news item to the effect that Standard



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Laboratories, Inc., had just filed a voluntary petition in bankruptcy in the United States District Court.—*Jour. A. M. A.*, September 10, 1927, p. 886.

Gelobarin not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Gelobarin is the trade-marked name under which the Powers-Weightman-Rosengarten Company markets a mixture of barium sulphate and water, containing approximately 40 per cent of barium sulphate. The preparation is proposed for use in radiologic examinations. The Council found Gelobarin unacceptable for New and Nonofficial Remedies because it is an unoriginal product that is offered under a proprietary, nondescriptive name.—*Jour. A. M. A.*, September 17, 1927, p. 984.

Gonococcus Immunogen, Gonococcus Immunogen Combined, Streptococcus Immunogen, Streptococcus Immunogen Combined, Pertussis Immunogen Combined, and Pneumococcus Immunogen Combined not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Immunogen is the name applied by Parke, Davis & Co. to bacterial antigen products free or nearly free from bacterial cells and toxin. The firm requested the Council to consider a number (twelve) of these products in 1924. The Council decided to consider eligible for acceptance those simple immunogens in the case of which similar bacterial vaccines stood accepted. Regarding the "mixed" immunogens which had been presented, the firm was informed that adequate evidence for the value of these preparations was lacking, but that any new evidence for their therapeutic value would be considered. The firm presented evidence which per-

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mitted the acceptance of two of the simple immunogens. In view of the inquiries received concerning the advertising claims made for immunogens, Parke, Davis & Co. was informed that the Council desired to take definite action in regard to those which had not been made acceptable. The firm was requested to send the advertising for the, as yet unaccepted, immunogens that were being marketed together with any further information which would aid in determining their acceptability for inclusion in New and Nonofficial Remedies. On the basis of the available evidence the Council denied admission of the gonococcus and streptococcus immunogens to New and Nonofficial Remedies because no simple vaccines representing these organisms stand accepted; the "combined" immunogens (Gonococcus Immunogen Combined, Streptococcus Immunogen Combined, Pertussis Immunogen Combined, Pneumococcus Immunogen Combined) are held unaccepted for lack of adequate evidence of their therapeutic value.—*Jour. A. M. A.*, September 17, 1927, p. 984.

(Continued on Page 620)

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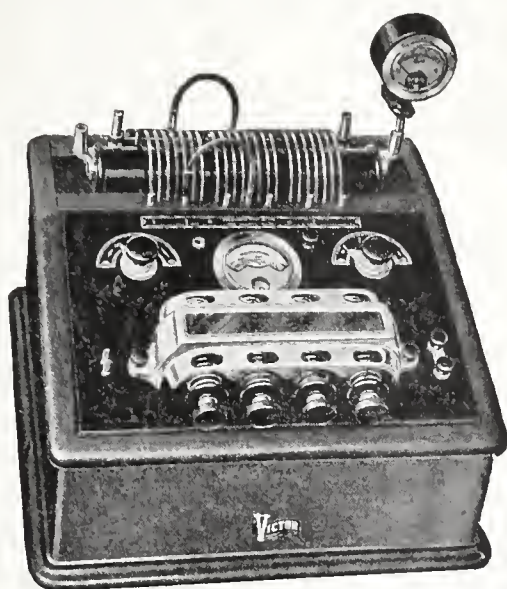
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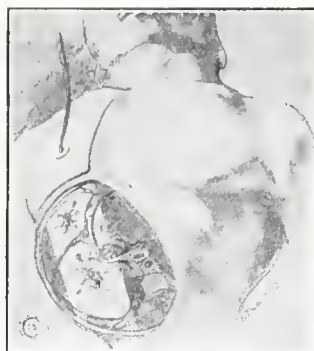
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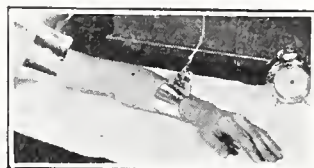
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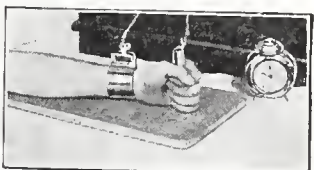


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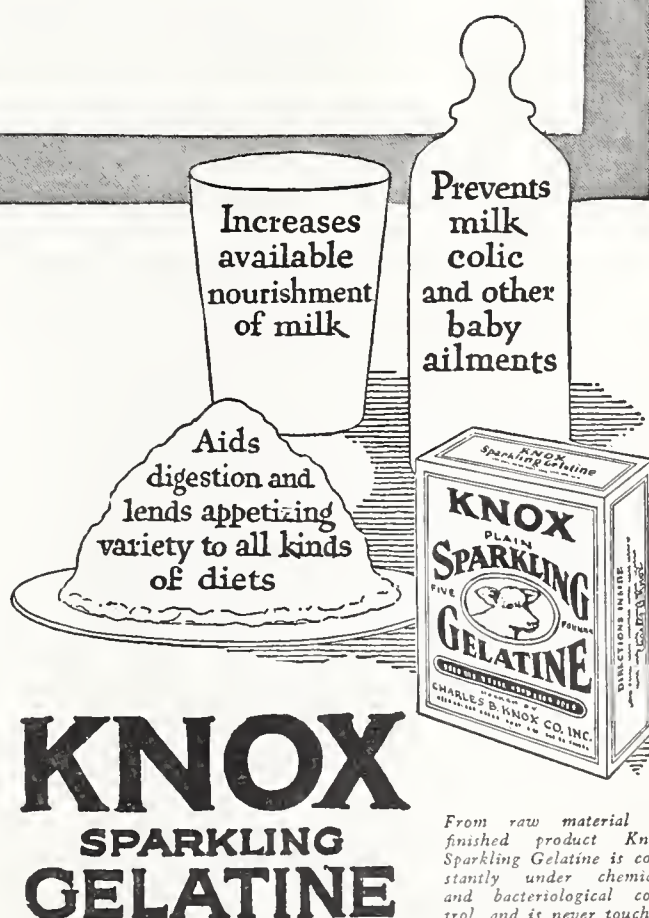
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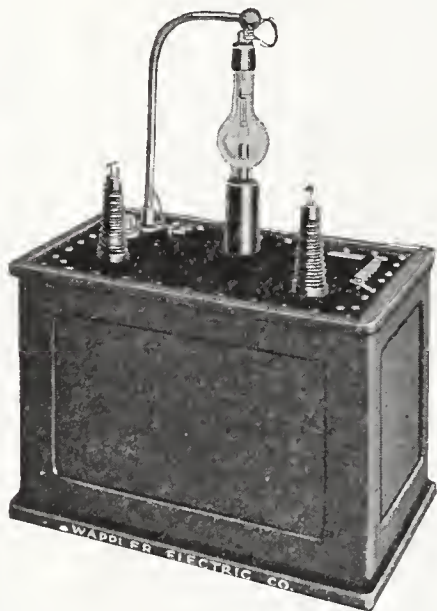
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TRUTH ABOUT MEDICINES

(Continued from Page 615)

Yeast—Yeast is rich in vitamin B. This is the only vitamin which it contains in important quantity as far as is known at present. According to New and Non-official Remedies, 1927, yeast has been used (a) in the past as a bactericide in the treatment of superficial infection, but this use of yeast has been practically abandoned; (b) as a source of vitamin B, for which yeast has been widely extolled; but, under usual conditions, the vitamin B requirement can be met by customary foods; (c) as a laxative, but only in case it does not cause intestinal distention; (d) in the past, as an internal remedy for furuncles and acne, but it is doubtful whether the benefit is in excess of the laxative effect; (e) as a stimulator of leukocytosis, but its efficacy in this respect is doubtful. The yeast obtained in grocery stores is essentially "brewers' yeast." It may be obtained either in semisolid form or in the form rendered solid by the addition of absorbent material.—*Jour. A. M. A.*, September 27, 1927, p. 1080.

There are two ways of being happy: we may either diminish our wants or augment our means—either will do—the result is the same; and it is for each man to decide for himself, and do that which happens to be the easiest. If you are idle or sick or poor, however hard it may be to diminish your wants, it will be harder to augment your means.

If you are active and prosperous or young or in good health, it may be easier for you to augment your means than to diminish your wants. But if you are wise you will do both at the same time, young or old, rich or poor, sick or well; and if you are very wise you will do both in such a way as to augment the general happiness of society.—Franklin.

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Published September 20, 1927

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Doctors and Laymen Agree—The New York State Charities Aid Association in its release for July 7 discusses the admirable arrangements entered into between that organization and the State Medical Society through the able direction of Dr. George N. Fisher and Homer Folks. Much of the misunderstanding and apprehension which has permeated not only the medical profession, but to some extent the non-official health agencies, can be prevented and obviated through a cooperative movement which extends throughout the state and local health and welfare organizations.

In New York State it is recommended that county medical societies accept the invitation from voluntary health agencies to designate certain of its members to serve on the board of directors of the voluntary health agencies, to study the program of such agency and, if such program is approved, make a public statement to that effect. The medical men are also urged to report any matter as to which an accord has not been reached with the voluntary health agency, in the hope that through conference between the State Medical Society and the parent body of the voluntary health agency many such matters may be negotiated and adjusted to the mutual satisfaction of all concerned.

In return the voluntary health agency is urged to invite the County Medical Society to designate certain members to serve on the board of directors of the voluntary agency, to appoint special reference committees, and to make periodic reports. The voluntary agency should conduct at least one open meeting each year to which the members of the County Medical Society should be invited.

Such a plan of coordination and cooperation has been approved by the State Medical Society and by the State Charities Aid Association.—*Am. J. Pub. Health.*

The number of new graduates in medicine in the United States this year is 4035.—*Nebraska M. J.*

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CALIFORNIA AND WESTERN MEDICINE

VOLUME XXVII

NOVEMBER, 1927

No. 5

EPIDEMIC ENCEPHALITIS—PRESENT STATUS OF ETIOLOGY AND TREATMENT*

By WILLIAM L. BENDER, M. D.
San Francisco

DISCUSSION by William Dock, M. D., *San Francisco*;
John C. Ruddock, M. D., *Los Angeles*; Laird M. Morris,
M. D., *San Francisco*.

WE are in a period in the history of epidemic encephalitis when a good deal can be gained by reviewing what has been learned since the first cases of the epidemic appeared in Austria ten years ago. Comparable to the studies of poliomyelitis and influenza, the investigation of encephalitis has rapidly waned, as the dying out of the epidemic has decreased both the desire and opportunity to attack the problems of etiology and treatment. Instead of the great mass of experimental results which the first years of the epidemic produced, there appear many clinical reports of the behavior of the disease and its relation to other diseases, which throw new light on the subject.

INCIDENCE

Encephalitis still remains a very serious problem, not only on account of the numerous cases with residual symptoms, many of which undoubtedly represent continued activity of the infection, but also because fresh cases still appear with disturbing frequency. It has recently been pointed out that the continued care of the chronic cases, many of them requiring long periods in institutions, is becoming an economic problem. The Medical Research Council of Great Britain in a report¹ of the Sheffield epidemic states that in England and Wales in 1924 there were 5039 cases reported. This is more than the sum of cases on record for the previous five years elapsing since the disease was made notifiable in 1919. During 1924 the mortality was 27 per cent. In 1925 there were 2635 cases reported, a little over half the number in 1924 but nearly twice as many as in any previous year. According to the epidemiological report of the League of Nations,² in England and Wales there were 2273 cases reported in 1926 against 2635 in 1925; in Scotland there were 193 in 1926 against 206 in 1925; in Russia 905 in the first nine months of 1926 against 969 for the same period in 1925; other nations of

the League seemed to fare comparably. According to the United States Public Health Reports³ there were 1441 deaths in the United States in 1924, and 1630 in 1925, due to encephalitis, a rate of about 1.5 per 100,000 population; compared with 1.0 for meningococcus meningitis and 8.0 for typhoid. This figure proves encephalitis still to be a disease of some public health importance in the United States. The figures for 1926 for the nation are not yet available. Last year ninety cases were reported in California and nineteen cases up to May 1, this year. The League of Nations report sets the incidence of the disease in the epidemic from August to October, 1926, in certain Japanese provinces at 13 to 15 per 100,000 inhabitants. In judging the figures quoted above it must be remembered that as the disease, especially in its more unusual forms, has become more generally recognized, fewer cases escape notification.

The report of the Sheffield epidemic¹ vividly portrays the gravity of epidemic encephalitis. Of 301 cases the immediate mortality in 1924 was 14.3 per cent; by the end of 1925, 21.3 per cent presented the Parkinsonian syndrome and five of these patients had died by the time the report was published in September, 1926; 13.6 per cent had sequelae, making work impossible; 31.2 per cent had incompletely recovered and only 17.6 per cent were clinically well with, however, the possibility of late oncoming residua.

A small epidemic of the Australian "x-disease" occurring in April and May, 1925, is reported by Baldwin and Heydon,⁴ who review previous reports. It is an acute infection with high mortality, simulating poliomyelitis but with marked cerebral involvement. Starting in Australia in 1917, when encephalitis was appearing in Europe, it has run through three epidemics; the third was limited to one town and ten of eleven patients died.

EXPERIMENTAL

As we review the inoculation experiments initiated by Loewe and Strauss in this country in 1919, and carried on particularly by Levaditi and his coworkers in France, McIntosh and Turnbull in England, and Kling and his associates in Sweden, we find almost complete agreement until 1924. It had been believed that a filterable virus was the etiological agent of encephalitis and that the infection was transmissible through many generations in animals, until it was later shown that rabbits, which had proven the most satisfactory subjects, were the victims of spontaneous en-

* From the George Williams Hooper Foundation for Medical Research, and the Department of Medicine, University of California Medical School, San Francisco.

cephalitis. This fact made questionable all reports of successful transmission of the infection, as pointed out by Flexner.⁵ After some controversy between groups of different laboratories concerning the validity of their respective results, work was apparently suspended, for few reports have appeared since 1924. Zinsser and Fei-Fang Tang⁶ failed to transmit encephalitis from eight human cases to rabbits and Dible⁷ failed in ten instances.

My own experience was quite in accord with that of the others. Working from 1922 to 1925, I had found lesions in the brains of 13 per cent of 160 rabbits inoculated with material from human cases and from other laboratories; review of my sections revealed the lesions of the spontaneous rabbit infection with sufficient frequency to throw doubt on the results.

Perhaps better than the "filterable virus" theory, has the test of time been withstood by the view that a streptococcus is the causative organism. Rosenow has contributed most of the cultural and inoculation experiments, with somewhat similar reports from Italian and German workers. The rôle of the "pleomorphic streptococcus" has been more recently reviewed by Evans and Freeman,⁸ who report successful transmission attempts of their own. Apparently this organism is a filter passer in some forms, and this fact may serve to reconcile the two views; so far, however, there is wide difference of opinion.

The relation of the virus of herpes to that of encephalitis has become an engaging subject. The herpetic virus, unlike the encephalitic, is very satisfactory to work with, regularly producing infection in animals and transmissible through many generations. It is usually obtained from the lesions of herpes labialis; the fluid from genitalis and zoster⁹ vesicles has also been shown to be infectious, though there has been some question about the last-named source. A great deal on transmission and immunological work has been published. By corneal inoculation, keratitis and encephalitis have been produced in animals, the latter with lesions characteristic of human encephalitis according to current views on the pathological picture. Encephalitis has also been produced by injection of herpes virus intracerebrally, cutaneously, peritoneally, and by a number of other routes. Animals surviving corneal or dermal inoculation become immune to cerebral injection not only of virus of herpes but also of the so-called virus of encephalitis supposedly transmitted from human cases. The work of Grüter, Doerr, Flexner and his associates, Levaditi, Perdrau, Goodpasture, and many more has been considered in reviews by Da Fano¹⁰ and by McKinley and Holden.¹¹

Controversy continues on whether the viruses of herpes and encephalitis are identical or merely members of the same group of filterable viruses, the one with "dermotropic" characteristics, the other with "neurotropic." In the present lack of

more definite knowledge about the latter it seems futile to speculate.

CLINICAL OBSERVATIONS

The probable relationship of poliomyelitis to encephalitis on clinical and pathological grounds was debated early. More recently the association with other infections, especially vaccinia, has been pointed out. Winnicott and Gibbs¹² collected forty-five cases of encephalitis following vaccination up to June, 1926. The complication, fortunately rare, is fatal in over 40 per cent of the cases, but the usual sequelae do not appear in those who recover from the acute phase. Encephalitic symptoms come on in four to fifteen days after vaccination, usually about ten or twelve, and either meningeal symptoms, palsies or lethargy predominate. Microscopic brain lesions, especially in the medulla and midbrain, considered characteristic of encephalitis, have been reported by Luksch¹³; he also produced encephalitis in 50 per cent of rabbits vaccinated on the cornea with the material used on the patients. Since this review a number of similar cases have been published, chiefly in the German journals. Instead of encephalitis, Frommel and Baumgartner¹⁴ encountered herpes zoster over the distribution of the lateral cutaneous nerve of the thigh. The clinical relation of herpes comes up again in the report by Flexner and Flexner¹⁵ of a severe prolonged case of encephalitis which was ushered in by herpes of the intercostal nerves; these authors stress the increasing frequency of zoster in recent years.

Winnicott and Gibbs¹² also report twelve cases with nervous symptoms, some characteristically encephalitic, coming on in the course of varicella; there were no fatalities or residual nervous symptoms. They also refer to several cases of measles complicated by encephalitis and believe that post-encephalitic residua have followed measles without acute manifestations. Autopsy in one case revealed hemorrhagic encephalitis. McLendon¹⁶ reports encephalitis occurring in the course of measles and cites another case; both recovered with the use of convalescent blood. Encephalitis complicating measles, especially the hemorrhagic form, may of course bear no relation to the epidemic disease.

The development of encephalitis after vaccination has led to another controversy, one side holding that the causative virus is present in the lymph used and possibly revealing a relationship between pox and encephalitic viruses, the other that vaccination simply activates a nervous disease of different etiology. Neither view is supported by known facts though the former gains credence from the observation that corneal vaccination has been followed by encephalitis in animals. Probably the main value of this whole group of observations is to confirm the opinion that we have to deal with a group of ultramicroscopic organisms, more or less closely related, about which little is definitely known though satisfactorily approached in the case of the virus of herpes.

Even further afield from human encephalitis is distemper of dogs, a highly infectious disease

with marked nervous symptoms. Pugh¹⁷ reports an epidemic with fifty fatal cases. The nervous symptoms were protean—paralyses especially in the hind legs, ataxia, lethargy, ocular palsies, myoclonia, changes in behavior, etc. Herpes was common. Post-mortem examination of the brains revealed, predominantly in the basal nuclei, marked mononuclear cell infiltration especially in the perivascular spaces, the picture which is considered characteristic of epidemic encephalitis.

TREATMENT

One who has come into contact with patients with encephalitis either in the acute or chronic form and has cast about for a reliable means of treatment needs no reminder that none is available. Many reports have appeared of various procedures applied to small groups of cases with encouraging results, but unfortunately these have not been successful in the hands of subsequent authors or have not been used on larger numbers by others. Strecker and Willey¹⁸ review treatment up to 1925. Drugs included sodium salicylate, sodium iodid, urotropin, colloidal gold, mercury, organic and inorganic arsenic preparations, hypertonic salt solution; protein therapy consisted of sodium nucleinate, casein, normal horse serum, antiphtheritic serum, typhoid vaccine, influenza bacillus antigen; convalescent serum had been suggested and used in a few cases; Rosenow had reported good results with his antistreptococci serum, but had not received the confirmation of others. Autoserotherapy was considered of value, but subsequent use has not borne out this opinion; Finlaison and Karnosh,¹⁹ for instance, found that intraspinal injections of the patient's serum improved only three of eight cases and made two definitely worse.

Strecker and Willey,¹⁸ following the encouraging report of Buss, found that neutral acriflavine caused improvement in ten of fourteen chronic, and Riggs²⁰ later reported quick recovery of three acute cases. The drug was given in courses of eight daily intravenous injections of 10 cc. of the 0.5 per cent solution. It has thus been judged favorably by three writers and its value should be more generally determined. On the other hand Hengstler²¹ was unable to confirm the results of Visser²² with mercurochrome.

Hyoscin, as in true Parkinson's disease, was found to be the most satisfactory drug by Hyslop²³ and probably is the one most relied upon generally to alleviate the spastic symptoms. He found adrenalin, pilocarpin, strychnin, atropin and gelsemium of little value, while nicotine caused transient relief of spasticity.

Further observations on the action of nicotine have been published by Hermann and Wotke²⁴ and Moll.²⁵ The former noted that cigarette smoking by a patient with postencephalitic Parkinson's disease subdued the tremor sufficiently for him to eat or write; while subcutaneous injections of nicotine up to 1/30 grain had no effect, the use of a decoction of cigarette tobacco transiently relieved tremor. Moll used larger doses, from 1/30 to 1/3 grain hypodermically, and noted improve-

ment in nine of thirteen cases with the Parkinsonian syndrome. Nicotine depresses the sympathetic system and accordingly interrupts the impulses concerned in maintaining plastic tone, according to his view.

Protein shock has proven of value in the treatment of the chronic cases and improvement has been reported following acute intercurrent infections. As in the case of other chronic diseases of the central nervous system the introduction of acute infections has been tried. Hoff,²⁶ getting unsatisfactory results with the use of urotropin, sodium iodid, and cacodylates, but encouraging improvement after shock treatment with typhoid bacillus vaccine, infected a series of thirty cases with malaria. Nineteen of the patients were in the Parkinsonian group and of these four improved; two others were better after treatment, a total of six. He does not mention untoward effects. My own experience with five chronic cases was very disappointing; the general condition of two was probably weakened by the paroxysms and the remaining three apparently were not influenced.

The effect of recurrent fever produced by injecting an emulsion containing *Spirocheta duttoni* intramuscularly has been tried by Marcus, Kling, and Höglund²⁷ in eighteen cases, the majority of which were severe and of long standing. Twelve were considered markedly improved when the spirochetal infection had burned itself out after from two to five febrile paroxysms, and in several the improvement seemed progressive.

Very little has been attempted in the field of specific therapy. Rosenow's antistreptococci serum has been referred to. The use of influenza bacillus antigen, mentioned above, has been on an empirical basis without scientific support of the relation of *B. influenzae* to encephalitis and the few recorded achievements were probably due to foreign protein reaction. Levaditi²⁸ in the light of his successful immunity experiments has initiated clinical trials of artificial immunity in acute and chronic human encephalitis. The method is bold, consisting of intraspinal injection of his presumed "encephalitis virus," fully active in brain material of rabbits dying of the experimental disease. In a paper by Marie and Poincloux²⁹ improvement is reported in six patients with postencephalitic Parkinsonism following one or more intraspinal injections of this "neurovaccine." Gilbert and Tzank³⁰ have added the report of an acute case recovering under similar treatment, and Henner³¹ of three acute and one subacute recovering and one of three chronic cases improving. The specificity claimed by these authors is questionable not only because of the uncertain status of the fundamental experimental work, but also because the profound reactions following the injections may account for the results on a purely non-specific basis.

It is probably good practice to clear up nasal sinus infection in chronic encephalitics on account of the frequency with which the nasopharynx acts as a portal and also because of the proximity to

the seat of the disease. Yates and Barnes³² found sinus infection in all of twenty-three encephalitics examined, and there have been several reports of a patient or two improving after eradication of sinus infection.

SUMMARY

Epidemic encephalitis is a serious disease, not only because of a considerable immediate mortality, but especially on account of a high incidence of sequelae.

The disease continues to occur in endemic form with sufficient frequency to grant it a good deal of importance. Added to this is the tendency to break forth in epidemic form.

A causative organism has not been determined; but observations, both experimental and clinical, seem to place encephalitis in a group of infections probably caused by related filterable viruses.

No satisfactory method of treatment is available. In addition to the usual methods of handling an acute infection, many procedures have been used in the acute phase of the disease and even more in the chronic. Some of these measures have offered hope of success, but instead of carrying on promising remedies the tendency has been constantly to introduce new ones.

384 Post Street.

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DISCUSSION

WILLIAM DOCK, M.D. (Lane Hospital, San Francisco)—Doctor Bender's comprehensive review again impresses on one the imperfections in our knowledge of etiology of many widespread diseases as well as the ineffectiveness of treatment. The fact, noted by Doctor Bender, that the disease, and presumably the etiologic factor, continues for years after the onset makes it seem very unlikely that any vaccine or serum treatment will be more effective than non-specific protein shock. This is urged purely from analogy with such diseases as syphilis, tuberculosis, acute rheumatic fever, and the like, in which one attack does not confer immunity, and in contrast with those diseases in which immune therapy is notably effective, *e. g.*, rabies, diphtheria, smallpox—all of which are followed by more or less prolonged immunity in the survivors. The herpes encephalitis of rabbits is followed by immunity to reinoculation, and this may be due to continued activity of the virus or to true immunity. Further light on this may serve to put herpes encephalitis into the class of human encephalitides occurring during mumps, varicella and vaccinia, rather than in the class of encephalitis lethargica epidemica. The difficulties of working on etiology of diseases such as rheumatic fever and encephalitis, which affect only a few people and apparently cannot be transmitted to animals, are so great as to be appreciated only by men like Doctor Bender, who have devoted some years to the problem. Careful observation of all cases of encephalitis, together with pathologic studies in fatal cases, will continue to furnish significant data and give us a sound basis from which to extend experiment.

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JOHN C. RUDDOCK, M.D. (1002 Pacific Mutual Building, Los Angeles)—Doctor Bender's paper is an excellent, comprehensive summary of the present paucity of knowledge regarding the etiology of epidemic encephalitis. Doctor Bender brings before us the point that there is such a wide variety of opinions among the research workers who are attempting to catalogue the etiological factor of this disease. The interesting relation of the etiological identity of encephalitis and herpes febrilis corresponds to the recent work of Szymanowski and Zylberblast-Zand, who also found changes in the liver of their experimental animals, which finding is of interest in view of the incidence of hepatic cirrhosis in Wilson's disease.

Such reviews of such a widespread disease should stimulate similar reviews on other widespread dis-

eases in which the causative factor is not clear, such as acute rheumatic fever.

LAIRD M. MORRIS, M. D. (490 Post Street, San Francisco)—Doctor Bender presents a very comprehensive study of epidemic encephalitis. He is to be congratulated on the completeness of his paper and the manner in which it is presented. A certain interest has recently been aroused in other types of encephalitis or meningoencephalitis which attack the central nervous system in a manner similar to that of epidemic encephalitis. I refer to encephalitis following measles, mumps, vaccinia, and varicella. As presented by Doctor Bender these complications are not common, but are etiologically quite distinct from the epidemic variety. These conditions are caused by ultramicroscopic organisms, and a differential diagnosis at present is quite impossible by changes in the spinal fluid. The clinical history is therefore of paramount importance.

THE EFFECT OF LEAD UPON NORMAL AND MALIGNANT TISSUES*

By FRANKLIN R. NUZUM, M. D.
RICHARD D. EVANS, M. D.
AND
HENRY J. ULLMANN, M. D.
Santa Barbara

DISCUSSION by D. Schuyler Pulford, M. D., Woodland;
William Ophüls, M. D., San Francisco.

MANY substances have been used in the treatment of malignant neoplasia, including salts of tellurium and selenium, and colloidal preparations of lead, copper, sulphur, silver, and gold. By their use regressive changes have been noted in the tumors, but in general these compounds have proved too toxic to justify general usage.

REVIEW OF RECENT LITERATURE

W. Blair Bell, to whom the credit is due for the recent interest in this problem, found that lead produces abortion by an elective toxic action on the cells of the trophoblast in animals poisoned by lead, and remarked on the frequency of abortion in lead workers.¹ He showed this to be due to coagulative necrosis of the chorionic epithelium, specific for lead and not produced by the other metals used. Working on the hypothesis that chorionic epithelium is physiologically malignant and closely related to the malignant tumors, he used lead in the treatment of these conditions.² He states that malignant neoplasia is a specific growth process in which there is a reversion on the part of the starving cell to the nutriment seeking proclivities of the ancestral chorionic epithelium.³ According to the hypothesis, lead is attracted to these tissues because of the higher phosphatid values and higher phosphatid-cholesterol ratios in chorionic epithelium and malignant new growths, and that it serves as a substitute for the biological inhibitor of growth of the chorionic epithelium.^{3 4} Lead was found by chemical analy-

ses to be present in the tumor tissue out of proportion to that found in other tissues.⁴

The preparation used was colloidal metallic lead prepared by the Bredig method in 0.4 per cent aqueous gelatin with the addition of 0.027 per cent calcium chlorid.⁵ The final product was centrifugalized to eliminate particles larger than 0.2 micron, made hypertonic by the addition of sodium chlorid 2.0 per cent, potassium chlorid 0.05 per cent, and calcium chlorid 0.027 per cent. The product was sterilized by boiling, and remained stable two or three days before becoming toxic. Of 227 patients treated by means of intravenous injections of the preparation, all in a hopelessly advanced stage of the disease, fifty have lived for from one to five years in a completely arrested state.

Histological evidence of the above striking effects is difficult of demonstration,⁶ since microscopic examination must be made within two or three weeks of the lead injection when the regressive changes are most active. Later there should be a complete disappearance of the tumor cells, with some inflammatory reaction, and finally a replacement fibrosis. Glynn⁷ urges that great caution be exercised in the interpretation of such alterations since degenerative changes commonly occur in any untreated malignancy, and reports only six instances where histological changes are demonstrable, as probably due to the lead alone. There were: distortion of the carcinoma cells into spindle, star, and sarcoma-like shapes and actual necrosis of these cells. The epithelial nature of the majority was lost. A subacute interstitial inflammatory reaction with a complete absence of tumor cells was also found. Plates of photomicrographs illustrative of these changes are given. He concluded that in the majority of lead treated malignant growths there is no histological evidence of the effect, but that in certain instances lead seemed to have increased the regressive changes which usually occur in carcinoma and to slow the rate of growth. Greater specialization of the malignant cells with keratinization and the formation of nests and goblet cells are manifestations of the slowing of the rate of growth. The lesser degree of regression found in relatively avascular fibrosed lymph glands indicates that the action of lead depends on a well-developed and unobstructed blood supply. He states that the absence of characteristic change is no proof that lead has no action, as there is nothing histologically characteristic of the effect of iodid on gummata.

Wood has observed a disappearance of malignant tumors of rats two or three days after the injection of lead suspensoids.⁸ There is first an intense congestion and edema and after twenty-four hours there are abundant thromboses in the tumor capillaries with resultant necroses of the regions supplied by the affected vessels. The tumor shrinks and the tension is relieved. Unless the dose of lead has been large and repeated, however, there are usually growing cells about the periphery from which recurrences may take place. Wood believes the effect is probably pro-

* From the Pathological Laboratory and Department of Cancer Research of the Santa Barbara Cottage Hospital, Santa Barbara, California. Director of the Department of Cancer Research, Henry J. Ullmann, M. D.

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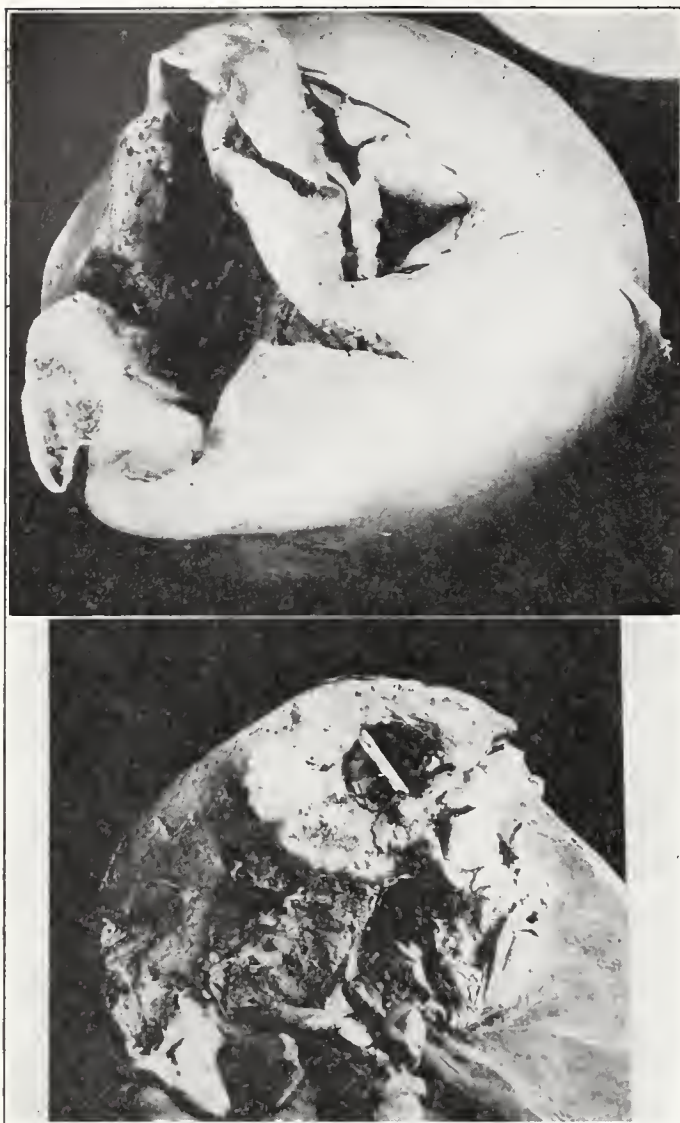


Fig 1 (top)—The cyst of the right lobe of the liver after evacuation of its liquefied contents.

Fig. 2 (bottom)—The cyst of the left lobe of the liver surrounded by a rim of tumor tissue.

duced both by capillary injury and by direct toxic action on the tumor cells.

Martland, Sochocky, and Hoffman report only one instance in seventeen in which there was unquestioned diminution in the extent of a growth possibly attributable to the lead.⁹ This was an epithelioma of the lip and reduction of the inflammatory swelling might have been the explanation. They used very large doses, from 1000 to 2500 mgm. of a stable lead colloid, the details of preparation of which are not given, in doses of from 50 to 500 mgm., during a period of from six to ten weeks. They found no histological evidence that a cancer cell had taken up or absorbed lead and that no tumor contained more lead than could be explained by the difficulty in separating the tumor from the surrounding lead-containing tissue. Most of the colloidal lead was stored in the main organs of the reticulo-endothelial system by the phagocytic properties of the histiocytes of the spleen, liver, and bone marrow. They conclude that lead in the form of a stable metallic colloid does not enter into combination with the phosphatids present in carcinoma cells after intravenous administration, and that in the absence

of thromboses there is no effect on malignant growths.

EFFECTS ON CERTAIN ORGANS

Liver—Marked damage of this organ may be expected since the liver eliminates lead. Alterations varying from fatty change to interlobular cirrhosis have been described in lead poisoning by Hutton, Potain, and Alcock.¹⁰ Ophüls has produced marked focal necrosis of cells in guinea-pigs, though he believes the only condition attributable to the action of lead was the hemogenous pigmentation.¹¹ Aub, Fairhall, Minot, and Reznikoff agree with Oliver in that the consensus of opinion is that there is no specific change for lead.¹² Focal necroses similar to those seen in infectious diseases in human beings have been produced by Wood in rats, apparently because of vascular lesions.⁸ Bell, Williams, and Cunningham noted congestion, fatty infiltration, and deposition of hemosiderin in two human beings and two dogs following the intravenous injection of colloidal metallic lead.¹³

Kidney—As evidence of damage to this organ by its excretion of lead, both the acute and chronic types of nephritis have been reported. Oliver has described acute tubular nephritis characterized by cloudy swelling and fatty degeneration of the cells lining the tubules with destruction of some.¹⁴ Atrophy of the glomeruli with hyalin degeneration of the vessels has been seen.¹⁵ Ophüls has seen some degeneration and fibrous thickening of the glomeruli as the only constant lesion in the guinea-pigs.¹¹ Cloudy swelling of the tubular epithelium was seen by Bell, Williams, and Cunningham after the use of as little as 34 mgm. and as much as 350 mgm. of lead in treatment.¹³ Cloudy swelling and tubular necrosis were found by Wood in animals.⁸

Spleen—Oliver¹⁶ believes there is no noteworthy change of this organ, and Jores has noted increased pigmentation from blood destruction.¹⁷ A slate-brown color due to the storage of large amounts of lead in the spleen has been reported by Martland, Sochocky, and Hoffman.⁹

Blood—According to Aub and his co-authors, the changes include: punctate basophilia, polychromasia, nucleated red cells, anisocytosis, poikilocytosis, and an anemia characterized by a low hemoglobin, the red count being not much decreased.¹²

METHODS

In our own early work, colloidal metallic lead was used, prepared by the Bredig method and made resistant to oxidation by the addition of glucose.^{18 21} Owing to the blood destruction produced by this compound, and since certain investigators believe that lead could hardly be present in the blood stream except as the phosphate in the colloidal form,¹² Bischoff (working in our laboratory) has prepared colloidal trilead orthophosphate.²⁰ Trilead phosphate in a slightly alkaline medium such as the body tissues is stable, and as such its solubility is 0.13 mgm. per liter of water. In equilibrium or in slightly acid conditions, however, dilead phosphate is formed, the

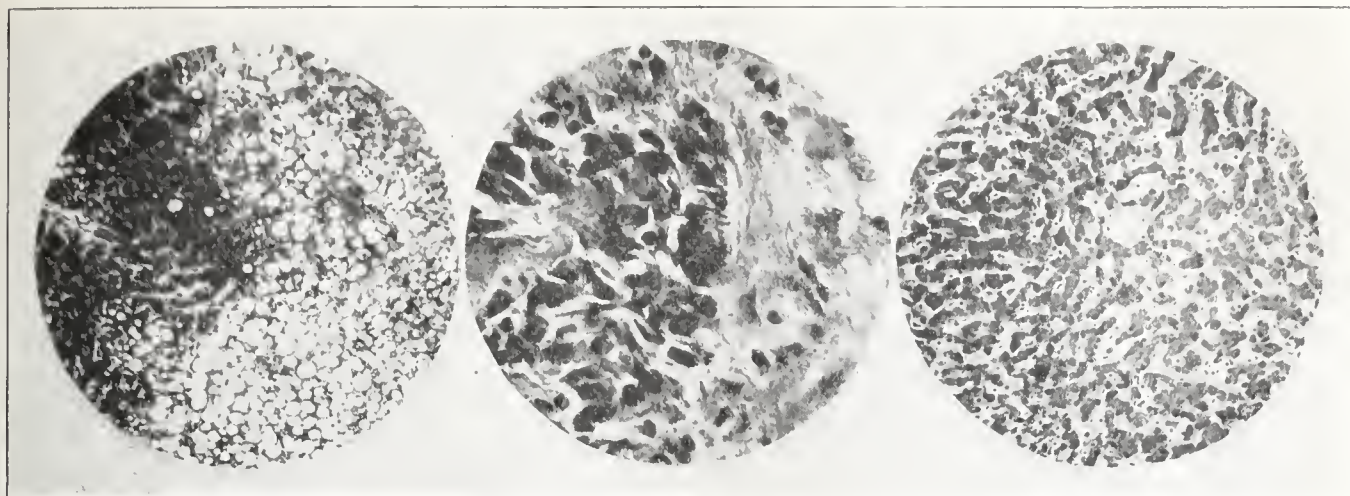


Fig. 3—Marked fatty change of the liver. (Low power.)

Fig. 4—Distorted carcinoma cells in the fibrous tissue capsule of the large cyst. (High power.)

Fig. 5—Focal necrosis of the liver. (Low power.)

solubility of which is approximately one hundred times that of the trilead salt.¹² It was hoped to take advantage of this fact to secure local toxic action within the tumor cells which have been shown to produce three to four times as much lactic acid as normal tissues.¹⁹ The solvent action of lactic acid is specific, as certain more highly ionized acids have a less solvent effect. This of course is in contrast to the theory of Bell, who used lead on the strength of the affinity for the increased lecithin content of the tumors. The dosage and times between injections have varied with different patients and are stated for each one individually. The material includes six necropsies and two biopsies. Necropsies were made within a few hours after death and the sections were imbedded in paraffin and stained with hemotoxylin and eosin.

CASE REPORTS

PATIENT No. 1—A female, age 41 years, had an endo-thelioma (diagnosis concurred in by Dr. A. M. Moody of San Francisco) of the neck, excised three years before, and x-ray and radium treatments had been employed. On entrance there was a mass 5 cm. in diameter behind the left ear and metastatic nodules were seen throughout the lung fields in x-ray films of the chest. During three months 221 mgm. of colloidal metallic lead were given in approximately three equal doses. On entrance the hemoglobin was 47 per cent; the red cell count, 2,830,000, while shortly before death the former was 30 per cent, the latter 3,450,000. At necropsy the neck was found infiltrated with extension metastases and there were further metastases to the regional, mediastinal, and biliary lymph glands, and to the lungs and liver. A cyst of the dome of the right lobe of the liver was 8 cm. in diameter and filled with gray-white fluid (Fig. 1). Another of the under surface of the left lobe was 2.5 cm. in diameter with a similar content, and surrounded by a rim of tumor tissue 1.5 cm. wide (Fig. 2). Multiple small nodules up to 4 cm. in diameter were scattered throughout the lungs, and in the centers of some of them there was pus. On section of the liver there was extensive fatty change, so that from one-fourth to one-third of the liver parenchyma was replaced by fat (Fig. 3). Many small regions of tumor cells were seen in the wall of each cyst and many of these were shrunken and distorted (Fig. 4). Unaltered tumor cells were also seen. The wall of the larger cyst was mostly of fibrous tissue with but few islands of tumor tissue. In the lung the centers of the metastatic nodules were poorly stained and some were necrotic and infiltrated with polymor-

phonuclear leukocytes. In the spleen there was no alteration. In sections of the kidneys there was marked cloudy swelling of the cells lining the first and second portions of the convoluted tubules, and in places the lumina were obliterated. In small regions actual necrosis of these cells had occurred.

PATIENT No. 2—A male, age 51, had noticed blood in the stools and loss of weight for six months. An annular indurated mass was palpable high in the rectum that bled easily. During twelve weeks 251.2 mgm. of colloidal metallic lead were given intravenously in three doses. The hemoglobin dropped from 78 to 48 per cent, the red cell count from 4,750,000 to 3,310,000. The anatomic diagnoses were: carcinoma of the rectum with regional extension into the wall of the left ureter, and metastases to the lungs, omentum, and peritoneum; multiple abscesses of the lungs (liquefaction of the carcinomatous areas and secondary infection); bilateral hypostatic bronchopneumonia; terminal subacute peritonitis and pericarditis; moderate left hydronephrosis and hydronephrosis; cloudy swelling of the kidneys; and moderate hyperplasia of the spleen. An abscess cavity of the left lung was 6 x 3 cm. and filled with thick creamy pus, and two others in the hilus of the right lung were 1 cm. in diameter. Thick fibrous walls surrounded these cavities. In sections of the liver multiple regions of focal necrosis interrupted the continuity of the cords of cells (Fig. 5). Only a moderate amount of fatty change was present. In the tumor nodules of the lungs the centers were poorly stained if at all. There was no noteworthy change of the spleen. The changes in the kidney were those of a chronic glomerulonephritis with thickening of Bowman's capsule. Of the cells of the convoluted tubules there was cloudy swelling, and of some there was actual necrosis. In 100 gm. of tissue from the lung, liver, and carcinoma, there were found 0.96, 0.60, and 0.21 mgm. of lead respectively.

PATIENT No. 3—A male, 40 years of age, complained of loss of weight, weakness, and an enlarging mass of the abdomen for three months. A laparotomy had revealed an extensive carcinoma of the liver. Fifty mgm. of colloidal metallic lead and 52 mgm. of colloidal lead phosphate were injected intravenously at an interval of seventeen days. The hemoglobin on entrance was 80 per cent and just before death was 75 per cent, while the red cell counts were 4,210,000 and 4,150,000, respectively. The anatomic diagnosis included: extensive carcinoma of the liver with metastases to the pancreas, lungs, endocardium, epicardium, left kidney and subcutaneous tissue; hydrops; icterus; and cloudy swelling of the kidneys. The liver weighed 4392 gm. and was infiltrated with tumors varying in diameter from 5 mm. to 22 cm. In the large tumors there was some evidence of softening in the centers. In sections of the nodules of the liver the cells were

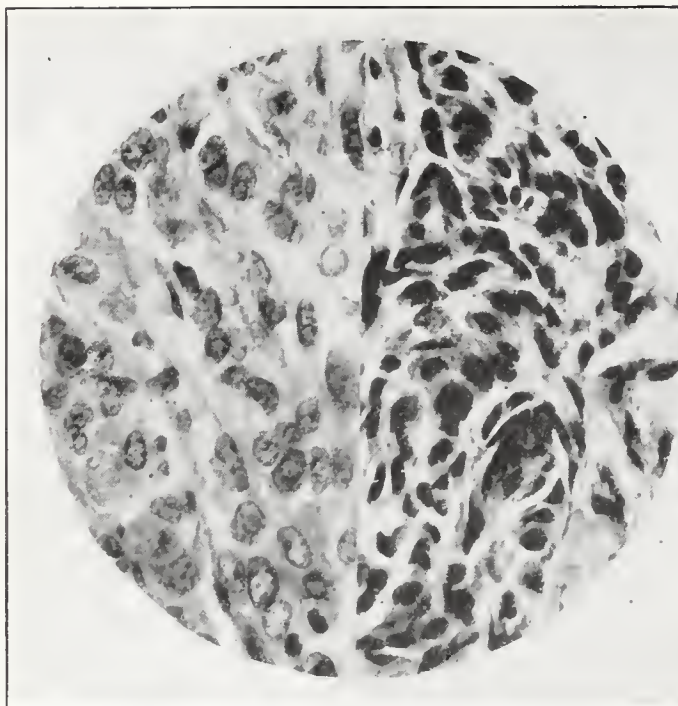


Fig. 6—On the left hand are the "healthy" carcinoma cells, while on the right they are distorted by direct injection of colloidal lead phosphate. (High power.)

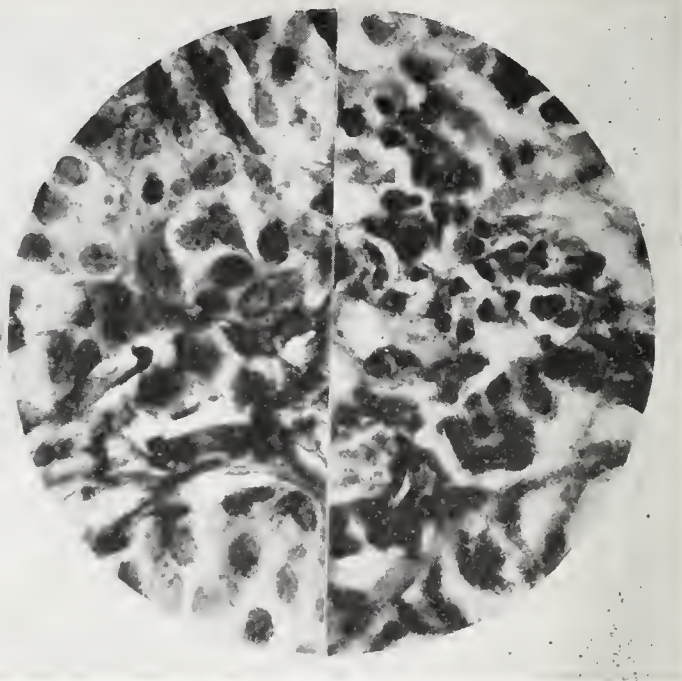


Fig. 7—At the left are apparently healthy carcinoma cells from the center of a subcutaneous nodule treated only by intravenous colloidal lead phosphate. At the right are altered tumor cells from the periphery of the same nodule. (High power.)

atypically epithelial, with hyperchromatic nuclei and poorly staining cytoplasm. No change attributable to the lead was present. Practically all of the liver was replaced by tumor tissue. During life 0.5 cc. of colloidal lead phosphate (containing 2 mgm. of lead) was injected directly into the center of a subcutaneous nodule of the left elbow, and two days later this nodule and a similar sized one overlying the sternum were excised. In sections of the latter the carcinoma cells were round and appeared "healthy," while in those of the former into which the lead was injected, the cells were markedly distorted into bizarre shapes and were barely recognizable as epithelial cells (Fig. 6).

PATIENT No. 4—A male, age 69 years, had complained of difficulty in urination for eighteen months, with loss of weight and hypogastric pain. By rectal examination a large mass the size of a tangerine, nodular and tender, was felt arising from the prostate gland. During five weeks 280 mgm. of lead phosphate were given in three doses. After the second dose the mass had reduced one-third in size and there was much less tenderness. The hemoglobin fell from 55 to 45 per cent, the red cell count from 3,300,000 to 2,900,000 during the last eight weeks of life. The anatomic diagnoses were: carcinoma of the prostate gland with metastases to the lumbar lymph glands; bilateral hydronephrosis; right bronchopneumonia and serofibrinous pleuritis. There was practically nothing but carcinoma tissue in sections of the prostate gland with the cells arranged in poorly formed alveoli and solid masses. Mitotic figures were common and no degenerative changes were evident. In the liver there was no evidence of damage. In the lung the alveoli of the consolidated portion were filled with an inflammatory exudate. There was moderately increased deposition of pigment in the spleen. By chemical analyses of 100 gram weights of tissues there were: in the liver, 1.93 mgm. of lead; in the sternum, 0.52 mgm. of lead; in the lung, 0.13; in the kidney, 0.14; and in the carcinoma itself, 0.36 mgm. of lead.

PATIENT No. 5—A male, age 69 years, complained of difficulty in swallowing for two years and had had x-ray treatments. Over a period of four weeks 144 mgm. of colloidal metallic lead were administered in three doses. The hemoglobin fell from 80 to 70 per cent, the red cells from 4,500,000 to 2,930,000. An occasional stippled cell was present. The main fea-

tures of the anatomic diagnosis were: carcinoma of the esophagus with obstruction and metastases to the regional lymph glands; gastrostomy, terminal left hypostatic bronchopneumonia; hypostatic hyperemia and edema of the lungs; long-since surgically removed prostate gland; and slight left hydronephrosis. The wall of the esophagus for 5 cm. of its lower third was thickened up to 15 mm. with firm gray tissue so that the tip of a finger could barely be passed through the lumen. In sections of the esophageal wall the cancer cells were without evidence of degenerative change. In those of the kidneys there was a moderate grade glomerulo nephritis with hyalinization of some of the glomeruli. There was no evidence of change attributable to lead. In sections of the liver and spleen there were no changes. In 100 gm. of sternum, 0.66 mgm. of lead was found by chemical analysis; in a like amount of diaphragm, 0.42 mgm. of lead.

PATIENT No. 6—A female, age 65 years, complained of vaginal discharge and pelvic pain for six weeks. A hard mass about the cervix and upper half of the vagina was found to extend into the left broad ligament. Deep x-ray therapy was used in conjunction with radium. On entrance the hemoglobin was 70 per cent, the red cell count 3,380,000; just before death the figures were 43 per cent and 3,250,000 respectively. Two hundred and fifty mgm. of colloidal lead phosphate were injected in three doses during the course of five weeks. Three months later 80 mgm. of lead phosphate were given. The anatomic diagnoses included: carcinoma of the urinary bladder, with metastases to the vagina; left hydronephrosis and hydro-nephrosis; right nephrolithiasis and pyonephrosis. In sections of the tumor there were small solid masses of epithelial cells free from degenerative changes. In the liver there were slightly fatty change, and a few regions of focal necrosis. There was cloudy swelling of the cells lining the convoluted tubules of the kidneys, and the deposition of pigment in the spleen was moderately increased.

PATIENT No. 7—A female, age 44 years, had had a radical resection of the left breast three and one-half years before for carcinoma, and later subcutaneous nodules were removed on two occasions. In all 340 mgm. of colloidal lead phosphate have been administered intravenously during five months, and x-ray and radium therapy have been used in conjunction.

Marked regression of a large carcinoma of the right breast and of subcutaneous nodules has been observed. In a section of a subcutaneous nodule removed during life which had not been radiated, the carcinoma cells in the center were round and apparently "healthy," while those about the periphery were markedly distorted and similar to those of the nodules previously described into which lead had been directly injected (Fig. 7).

CHEMICAL ANALYSES

Tissue	Mgm. of Lead Per 100 Gm.	Lead Administered to Patient
Patient No. 2:		
Lung	0.96	252 mgm. of colloidal me- tallic lead
Liver	0.60	
Carcinoma	0.21	
Patient No. 4:		
Liver	1.93	280 mgm. of colloidal lead phosphate
Sternum	0.52	
Lung	0.31	
Kidney	0.14	
Carcinoma	0.36	
Patient No. 5:		
Sternum	0.66	149 mgm. of colloidal me- tallic lead
Diaphragm	0.42	

SUMMARY

In a short series of patients where all available means to combat the disease have been employed, including blood transfusion, x-ray and radium therapy, it is difficult to evaluate the results. The following statements seem fair:

- 1. Marked regressive changes have been noted in certain of the tumors treated by intravenous preparations of colloidal lead.
- 2. Fatty change of the liver, cloudy swelling of the cells lining the convoluted tubules of the kidneys, and blood destruction are changes fairly constantly associated with the use of colloidal metallic lead.
- 3. Our observations bear out the statement of Glynn that there is nothing histologically pathognomonic of the effect of lead on tumor cells, but that the naturally occurring regressive changes are intensified.

Santa Barbara Cottage Hospital.

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DISCUSSION

D. SCHUYLER PULFORD, M.D. (Woodland Clinic, Woodland)—The Blair Bell idea of neoplasia is not new. It has been thought for a long time that the non-communistic invasive growth of tumor cells was a food-searching activity, the result of an unsatisfactory environment. MacCarty has clearly described this process of neoplasia in terms of degrees of differentiation, 0°-1°-2°-3°, recognizing the "reserve cell" which has "gone wild" as the start of it all. Many organs have been shown to possess this reserve cell lying in the membrana propria and springing into life on certain stimuli to produce new cells such as in repair when adult functioning cells are destroyed, or for some unknown reason producing a benign neoplasm. Sometimes, perhaps after continued insult of a chronic irritant, a malignant invading metastasizing neoplasm is produced, not by a "reversion," but by an accentuation of the normal growth process.

I mention MacCarty's idea of 0°-1°-2°-3°, of differentiation in neoplasia because it is the principle which enables one to classify all new growths in the way most important to both the patient and the doctor; that is to say, in terms of its degree of malignancy. A new growth with 0 degree differentiation is the most malignant tumor possible; 1 degree and 2 degrees differentiation are the commonly encountered malignant neoplasms. Three-degree type are benign tumors.

For the sake of clarity in discussing the grading of neoplasms, which I believe is important in the study of the lead treatment of tumors, let me emphasize that this 0°-1°-2°-3° differentiation is applied to neoplasia, the development of new growths, and is not applied to the classification of neoplasms or the grading of tumors after being developed.

The grading of tumors is spoken of in four grades—1, 2, 3, 4—in ascending grades of malignancy according to the differentiation in the cells of the tumor as such. Given a malignant tumor it is graded princi-

pally by a simple mathematical estimation of the per cent of differentiated cells per field.

Now since cell growth is directly proportional to lack of differentiation, and since cell vulnerability to destructive agents is likewise proportional to this, it must be an important factor in deciding the efficacy or failure of lead treatment. And I believe that it will help to clarify matters if the grade of malignancy of the tumors be reported after this method of Broders.

Since we have so little knowledge of the etiology of cancer it is well to concentrate upon its treatment. The latest and most promising line of attack is the Blair Bell-Ullmann colloidal tri-orthophosphate lead treatment. Our knowledge of the effect of colloidal lead upon normal and malignant tissues is still meager, and this accurate description of organs and tissues removed before death and at autopsy commands the attention of all interested in the fight against malignant disease.

It is the experience of the Woodland Clinic in four treated cases, including one autopsy, that the tri-lead orthophosphate solution as made by Bischoff of the Santa Barbara Cottage Hospital is very slightly toxic upon normal cells though destructive to malignant ones and does not produce the marked blood changes of the earlier Bredig prepared colloidal lead solutions. Our autopsy case was a Grade IV carcinoma of the stomach in a middle-aged Japanese man who had extensive recurrent nodules in the abdomen, mediastinal and cervical lymph nodes, and lung and liver metastases. He was given 390 mgms. of colloidal lead during a period of six weeks. The striking features were relief of pain, definite reduction in size of tumors and lack of anemia. Kidney function remained good. There was no jaundice. At autopsy neither kidney nor liver showed gross or microscopic parenchymal change though there were two nodules in the liver, 5 and 4 cm. in diameter, and many smaller nodules in the same organ. The lung metastases were broken down into abscesses. The liver function test done just before death showed a dye retention II on a scale of I to IV after the bromosulphthalein colorimetric method.

We have under treatment at present, besides an advanced cystadenoma of the ovary with large abdominal metastases, two patients in excellent general condition, one a Grade IV carcinoma of the breast and the other a squamous cell epithelioma of the jaw, Grade III.

Radiation is being utilized in all cases, and it appears to me that an added value of this procedure should be noted. If the lead is concentrated in the malignant tissue secondary irradiation would then be intensified and a greater depth dose could be given.

The excision of metastatic nodules for study during the course of treatment will be valuable, as well as direct injection of colloidal lead into the tumor masses as reported. This paper is, in my opinion, a very important and far-reaching contribution which will be most helpful to anyone undertaking the lead treatment of malignancy. As far as we have gone we agree with the Santa Barbara group and with Glynn that there is nothing characteristic of the effect of lead upon either normal or malignant cells morphologically demonstrable by our present known methods. It would seem that the solution of the problem lies more in the field of biophysics rather than tissue pathology. The liver function test may help in checking the administration of lead up to the point of such marked fatty replacement as described by the authors.

I believe that the Santa Barbara Clinic has proven that their colloidal tri-orthophosphate solution of lead is sufficiently non-toxic to be used safely in the hands of those equipped to follow the chemistry of the patients carefully, and that it should be used earlier in the course of malignant disease. It should especially be used in the Grade IV carcinomas with the patients in good general condition at the time diagnosis is made, because Grade IV cases practically

invariably ultimately die of recurrence under the older means of treatment.

I would like to ask the authors how soon and how late kidney damage has appeared in their cases under the administration of their present colloidal tri-orthophosphate lead solution. Our autopsy case received 390 mgms. of lead and showed no kidney change either functionally or morphologically, death occurring two months after the first injection from toxic asthenia. Our breast case has received 153 mgms. in three weeks and is now a month from the first injection and still maintains normal amount of urine and function of kidney.

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W. OPHÜLS, M.D. (Stanford University Medical School)—Doctor Nuzum's paper on the effect of lead upon normal and malignant tissues has interested me very much, because some time ago I made a study on chronic lead poisoning in guinea-pigs. The experiments were carried on by feeding a series of twenty-eight guinea-pigs carbonate of lead in sublethal doses. Some of the animals remained under the influence of lead for more than three years. The most pronounced changes were observed in the blood and the bone marrow. The animals became very anemic, had many nucleated reds in the circulating blood and the severe damage to the bone marrow was indicated by the appearance of megaloblasts in the marrow and in the circulation. The chief lesions in the kidneys and liver were focal necroses of the epithelial cells. In the kidneys they were located in the distal parts of the convoluted tubules and in the liver they were scattered irregularly in the liver lobules. The destroyed cells in both organs were replaced by regenerative proliferation of the remaining normal cells. In course of time the regenerative process became insufficient. This occurred relatively rarely in the kidneys, more frequently in the liver. The result of this insufficient regeneration was a collapse of the tissues in the affected areas. Few small areas of collapse were observed in the kidneys, many large ones in the liver. As a result of this in the late stages of the poisoning the liver was often greatly deformed. Little connective tissue proliferation took place in either organ and the vascular and glomerular changes were insignificant. No thromboses were observed in the blood vessels. The only vascular change which was fairly constant was an increased permeability of the capillary blood vessels which caused the production of aseptic serofibrinous exudates in the serous cavities.

From these experiments it is quite evident that lead is a primary cellular poison to which the red blood cells, also the liver cells, are very susceptible and to a lesser extent the renal epithelium. It is therefore quite possible that lead may have a similar or even more pronounced destructive action on tumor cells. I must confess that, to my mind, the evidence brought forward to support this view is more suggestive than entirely convincing. Central degeneration and softening of tumor nodules is nothing unusual in untreated cases. Spontaneous regressions of tumors are observed from time to time. Histologically it is very unusual to find a malignant growth in which not at least part of the cells are degenerated or actually necrotic. It is only by the comparative observation of long series of cases that Doctor Nuzum's contention, that by the lead treatment the naturally occurring regressive changes are intensified, can be finally substantiated. In the meantime it is certainly desirable that all cases which have been carefully observed clinically and have been subjected to a searching post-mortem examination should be published.

Doctor Pulford's suggestion that particular attention should be paid to the natural degree of malignancy of the tumors treated, is a good one. It should be understood, however, that it is not always an easy matter to make this determination. The primary tumors vary from time to time in the rate of their growth; their metastases sometimes grow more, sometimes less rapidly than the original tumors; each

individual tumor nodule usually has a slowly growing or even stationary center and a more actively growing periphery with varying grades of proliferative activity in between. It is not very practical, therefore, to express the grades of malignancy on a mathematical basis, but it is possible by taking into account the clinical as well as the histological picture to classify them roughly under the headings: very malignant, moderately malignant, relatively benign, and benign.

TRAUMATIC THROMBOSIS OF THE UPPER EXTREMITIES*

By JOSEPH K. SWINDT, M. D.

Pomona

DISCUSSION by C. Latimer Callander, M. D., San Francisco; Harlan Shoemaker, M. D., Los Angeles; Charles T. Sturgeon, M. D., Los Angeles.

AN acute thrombosis of the subclavian and axillary veins subsequent to effort has been recognized for forty years, but comparatively few cases have been placed on record. As there have been no autopsies and only a few biopsies, the establishment of indirect traumatism as the causative factor has been left to a forensic discussion of the unsettled theories of thrombus formation in general.

A survey of the literature reveals about fifty cases which have followed unaccustomed activity of the arms. The composite picture which they present is so distinct that the recognition of traumatic thrombosis as a definite clinical entity seems to be fully justified.

A typical case is characterized by Lowenstein as follows: "Following slight or more marked exertion, but without direct injury to the vein, there is a progressive swelling of the arm with pain usually referred to the axilla. With the increase of edema there are evidences of collateral circulation, and cyanosis is of frequent occurrence, although pallor may be present. Palpation of the axilla reveals a hard indurated cord, sensitive to pressure. The development of these phenomena usually occurs without fever and is succeeded by a period of rapid or more often tardy retrogression. This summarizes the history of a typical case of 'thrombose par effort,' 'a spontaneous thrombosis following exertion.'

The effort which produces this type of thrombosis seems to be, in the first place, an oft-repeated or prolonged exertion and, in the second place, one to which the patient is unaccustomed. In this way a sort of chronic trauma is applied indirectly to the vein which is quite different from the acute trauma of contusions and fractures which is applied directly to the vein. Willan's three cases were in athletic men who engaged in heavy labor; Scheppelmann's patient was riding a wild horse; Bauni's case was a housewife who had been moving heavy furniture; Rosenthal's were in a woman beating clothes and a child playing ball; Lowenstein's patient carried heavy trays for two hours while waiting on tables; Winter-

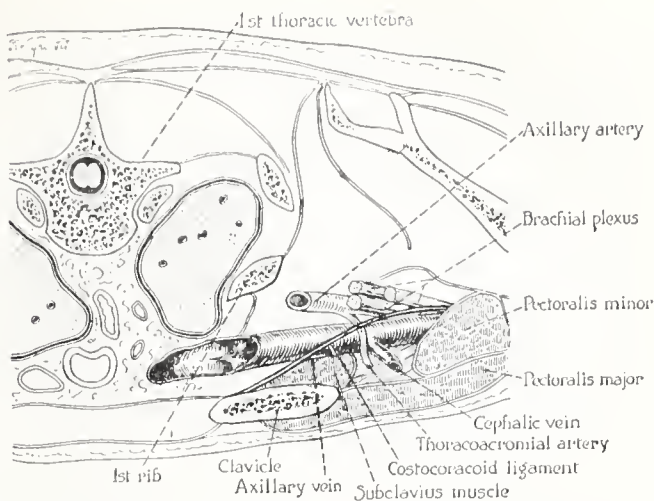


Fig. 1—Upper surface of transverse section at the level of first thoracic vertebra (lower third). Male adult. (Lowenstein.)

stein's was a weaver who piled heavy bolts of cloth on shelves above his head. My case occurred in a muscular young man "pulling tents" with a citrus fumigating gang. These tents are lifted from the trees by means of long poles and the effort required is extreme, with the arms held high above the head.

The majority of the cases reported have occurred in members of the working class in pursuance of their regular occupation, but called upon to perform some unusual duty, as in the case of the foreman of the tent-pullers taking the place of a sick laborer, or the weaver compelled to hastily pile the heavy bolts of cloth. Certain predisposing factors, such as substernal goiter, intrathoracic aneurysm or tumor, tuberculosis, syphilis, other chronic and acute infections may be present. Regardless of the presence of such predisposing factors it appears that chronic trauma is not incidental but absolutely essential to the production of the variety of thrombosis under consideration. It therefore follows that insofar as the trauma is the result of industrial activity, in all fairness to the injured employee, the lesion should be classed as an industrial accident and as such it should fall within the coverage of industrial compensation.

RÔLE OF INFECTION

Infection has so long been fixed in the minds of the profession as the primary cause of thrombosis that it is difficult to controvert the opinion of Lacene that the lesion is to be explained on the basis of a latent thrombophlebitis of bacterial origin. Most of the cases of thrombosis through effort have not been initiated by chills, their course has not been attended by fever, there has not been leukocytosis and other evidence of infection, and in many instances negative blood cultures have been reported. While Grimalt removed a clot from between ligatures and recovered staphylococcus albus and streptococcus viridens, Scheppelmann incised a thin-walled axillary vein and delivered an aseptic clot. Twenty years ago Welch said, "The problem whether bacteria have led to thrombosis by first invading the vascular wall and setting up an inflammation is not solved by the mere demonstration of their presence in

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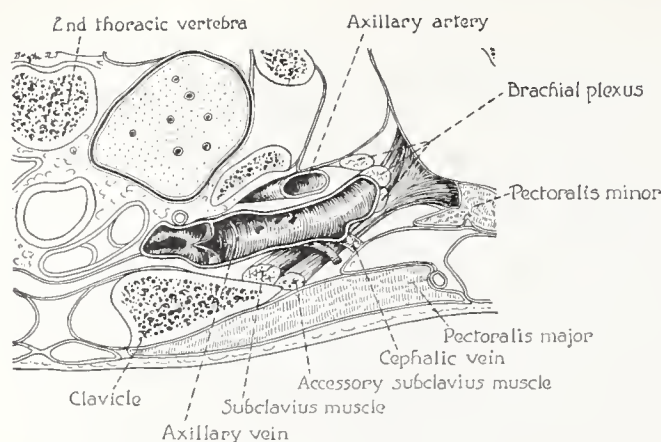


Fig. 2—Under surface of transverse section at level of second thoracic vertebra (upper third). Male adult. (Lowenstein.)

the thrombus." Moreover practically all of the cases of abrupt thrombosis occur in the upper extremity, while it is a well-known fact the thrombophlebitis occurring as a complication of infection practically always is found in the lower extremities.

MECHANICAL THEORY

A study of the various theories of thrombus formation convinces one that traumatic thrombosis may be satisfactorily explained on the basis of Aschoff's mechanical postulates. According to Conner the first comprehensive theory of the etiology of thrombosis was propounded by Hunter and Cruveilhier. They held that the primary condition was phlebitis and the accompanying clot was secondary and incidental. Later Virchow in his classical work on thrombosis and embolism presented a mass of evidence in favor of the view that the thrombosis was the primary and essential process, and that it was brought about chiefly by a slowing of the blood stream from causes which might be either local or general. Then Widal and Vaquez of the French school again shifted opinion to the view that infection plays the most important rôle in the process, and that the primary lesion is inflammation in the vessel wall. In recent years the importance of mechanical factors has again been emphasized in a most convincing manner by Aschoff and the Freiburg school. In mathematical parlance, Aschoff defines thrombosis as "the function of a number of variables" which may arise from three factors, namely, (1) changes in the blood flow, (2) changes in the vessel wall, and (3) changes in the blood elements. Fundamentally these changes are all physical as far as the mechanism of thrombosis as he reproduced it is concerned. The decelerated blood stream, the damaged vessel wall and the agglutinated platelets are essentially mechanical changes. Any one, two, or three of these changes may occur with or without the element of infection.

Welch, who seems to be quoted most frequently by all authors, declares that the factors which govern the slowing of the stream in the veins include "flow from smaller into larger channels, presence of valves, and fixation of the venous wall in certain situations to fascia and bones." The shoulder girdle presents a venous supply

which embraces all these factors in a striking combination. Such anatomists as Piersol, Cunningham and Deaver show that the axillary-subclavian vein is a very large and spacious trunk containing one or more valves, receiving several comparatively small collaterals and having a fibrous attachment to the costocoracoid ligament, the clavicle above and sometimes the rib below.

Conner expresses the dictum that "there has been a growing tendency to regard lesions of the intima as of prime importance among the factors concerned in thrombosis." Cadenet concludes that the thrombosis caused by exertion is probably due to a traumatic lesion of the intima determining the coagulation of the blood, and that the circulation is slowed by the forced expiration which accompanies the effort. Rosenthal and Pellow contend that the chronic trauma of muscular effort may "rupture the intima or tear small lateral vessels at the site of the thrombus." When the arm is engaged in severe effort the force of elevated intrathoracic pressure, or expiration, is directed outward through the subclavian vein. The unusual muscular contractions about the veins in the arm direct a peripheral force inward through the axillary vein. The meeting of these opposing forces under the clavicle produces a slowing of the stream at the precise point where the veins present all the anatomic peculiarities which Welch mentions as competent to induce a thrombosis.

ANATOMIC BASIS

In an attempt to discover an anatomic basis for the syndrome of traumatic thrombosis in the upper extremity Lowenstein made dissections of the axilla in thirty cadavers and sagittal sections in six others.¹ In conclusion he says: "It would seem, therefore, that the etiology of thrombosis produced by exertion has a twofold basis: first, ensues a venous stasis or circulatory slowing produced by forced expiration that characterizes effort. This stasis is clearly manifested in the head and neck by cyanosis of the face and the swelling of the jugulars. Secondly, marked abduction (beside the head) or extension (drawing backward) of the arm, probably with lateral rotation, produces a pronounced pressure by the costocoracoid ligament on the axillary vein, with resultant changes in the vascular endothelium sufficient to cause a thrombosis."

The subsequent fate of a thrombus according to Boyd is either absorption or organization. Usually contraction of the fibrin shrinks the thrombus away from the vessel wall, vascular endothelium covers it and the lumen is re-established. Occasionally the blood tunnels through the thrombus which thus becomes canalized. If the lumen is not re-established in these ways the collateral circulation must, through activity, enlarge sufficiently to carry the return flow around the obstruction. A venous thrombus is usually firmly attached to the vessel wall and consequently embolism is rare. The only case of embolism appearing in the literature on traumatic thrombosis is reported by Scheppelmann and followed his attempt at surgical cure of the throm-

buis. Welch says that organization is often well under way in a week and well advanced in two or three weeks.

The treatment of thrombosis in the upper extremities therefore consists of primary rest with the arm elevated for a period of one to three weeks to hasten absorption or canalization. After this massage and elevation are used to encourage collateral circulation. Surgical attack is advised against by all authors, as incision to remove the clot does not prevent the reformation of the thrombus and excision of the vein does not restore the circulation, while either procedure invites pulmonary embolism.

The prognosis as to life is good; as to restoration of function is fair. In a majority of the cases the arm is useful in two or three months, but there remains a certain amount of weakness due to chronic edema which constitutes a more or less permanent partial disability.

CASE REPORT

E. K., workman, age 23, weight 150 pounds. Last confined to bed by scarlatina at age of 11. In January, 1926, had a light cold followed by some transient pains about the thorax, but did not cease work. There have been no signs of respiratory or other infections since. No abrasions or wounds of the hands or arms.

About 3 a. m., August 5, 1926, while overseeing a gang of citrus fumigators patient took the place of one of the tent-pullers who was taken ill. In order to finish the job he worked with unusual vigor pulling the tents from the trees by lifting them at the end of a ten-foot pole, exerting himself to the utmost with the right arm elevated above the head. At the end of an hour he noticed that his right arm was swollen until the shirt sleeve was tight about it. There was numbness in the arm and tingling in the fingers and the weight of the member became oppressive.

During the next ten days the entire arm and shoulder continued to increase in size with some daily fluctuation of tenseness. About August 15 the arm and hand were so tense with swelling that they were painful and he first consulted Dr. John B. Craig of Upland.

Doctor Craig's examination on August 19, 1926, showed that the right arm was four inches larger than the left at the middle of the biceps. The veins about the shoulder were distended, the pressure in the right 140 and the left 125. Temperature and pulse normal. Chest was negative on physical examination and stereoscopic radiograms revealed no bony defects in the shoulder girdle, no goiter or other intrathoracic tumor and normal heart, vessels, diaphragm and lungs. Diagnosis of traumatic thrombosis of the subclavian vein was made.

September 9, 1926, when I first saw the patient, the right arm was three inches larger than the left. The edema about the shoulder extended backward over the scapula and forward to the nipple. There was no swelling in the neck. The veins under the clavicle were greatly distended, and a cord was palpable in the axilla and down the arm to the middle of the biceps. The pulse was equal in both wrists and the blood pressure in the right arm was 140 and in the left 120. There was no adenitis. Blood examination: red blood cells, 4,700,000; white blood cells, 7000; polymorphonuclears, 54 per cent; mononuclears, 30 per cent. Wassermann negative. Urinalysis negative. Pulse and temperature normal.

The patient was put to bed for a few days with the arm elevated above the head and maintained in this position by a balanced weight and pulley. After this he was allowed about in the daytime, using the arm lightly, and keeping it elevated at night, for about three weeks. Gradually the edema and the distension

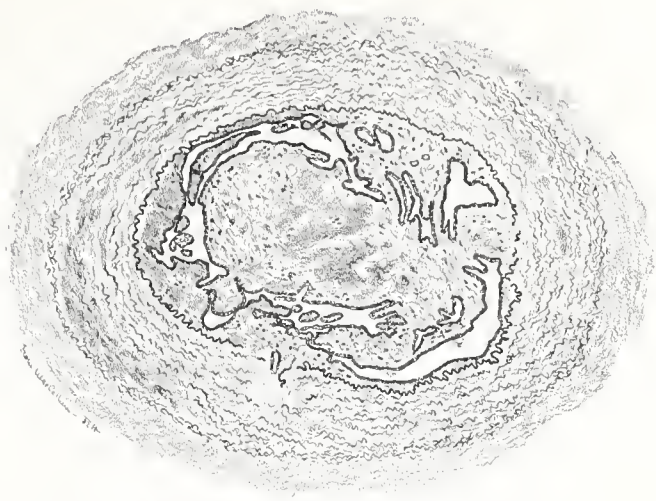


Fig. 3—Organized thrombosis in a vessel canalized by clefts relined with endothelium (MacCallum).

in the collateral veins has become less marked indicating that the lumen of the subclavian vein is being restored. January 15, 1927, the right arm measures only one inch larger than the left, and the pressure is 120 against 115 in the left. He has returned to ordinary farm labor, but often has to resort to elevation at night to reduce the swelling following a day's use. There has not been acute pain, but from the first, stiffness, tightness and heaviness in the arm have been the subjective symptoms.

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DISCUSSION

C. LATIMER CALLANDER, M.D. (240 Stockton Street, San Francisco)—I am delighted to have the opportunity of discussing Doctor Swindt's admirable paper on this, one of the rarer varieties of thrombosis, partly for the chance it affords me to congratulate the author on his splendid presentation of the subject, and also for the chance it gives briefly to mention two cases of a similar sort which have come to my attention within the past two years.

Each of these lesions arose in young men following exceedingly violent and sustained work. Both occurred in the upper extremity. One man felt the pain which initiated the thrombosis after prolonged hammering in a strained position with his arm above his head. The other had his onset in connection with continuous pulling at a wire cable in line of his duty about an oil derrick. In each instance there was pain in the upper extremity, particularly about the shoulder, and the sense of weight in the arm was severe and of considerable duration. The swelling and tenseness of the arms and forearms persisted until a complete collateral circulation about the basilic and cephalic networks of veins became established.

As the arms decreased in size the strength gradually returned, although I am unable to state whether total restoration of power occurred with the return of the size of the extremities to normalcy. While these patients remained under my observation most of the blood of the extremities was returning by the collateral paths, an indication that in the several months since onset the deep thrombosed veins had not become canalized.

The conditions of each of these men was considered compensable, but I do not know the degree of permanent disability rating, if any, that each injury imposed. The return of power and the diminution of the edema noted during the period of observation justified the opinion that no permanent disability judgment would be necessary.

HARLAN SHOEMAKER, M.D. (521 Bank of Italy Building, Los Angeles)—Doctor Swindt's paper brings up

the subject of thrombophlebitis. It is very much up to date and gives one an opportunity to speculate on this very academic question.

If we knew more of the processes of life itself, we should then be able to tell exactly what produced thrombosis. Thrombosis in the vessels is so unexplainable that it seems an act of God. One individual is so unfortunate as to have coronary artery thrombosis and sudden death ensues. Another suffers thrombosis in the vessels of the leg, and either suffers chronic phlebitis or loses the leg. The part that chemistry plays in thrombosis has never been fully valued. Doctor Swindt's patient undoubtedly had a sufficient quantity of cyanid to have aided materially in the alteration of the chemistry of the blood. He had just relieved a fellow worker overcome from the gas.

The presence of bacteria does not necessarily produce a thrombosis, but the very highly toxic substance of a very complex chemical naturally excreted by these bacteria or produced by their metabolic activity will produce a very prompt thrombosis. That delicate irritating substance that releases the thrombo plastin, which is the foundation of the blood-clot, is still an unknown substance in the domain of physiological chemistry.

From an academic standpoint such a vital substance is very near the life force itself. When we know more what life is blood-clots will disappear.

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CHARLES T. STURGEON, M.D. (1136 West Sixth Street, Los Angeles)—I wish to congratulate Doctor Swindt upon the admirable way in which he presented the subject of traumatic thrombosis of the upper extremities.

This is an extremely rare condition, but nevertheless occurs often enough to cause much speculation as to the cause. It is unquestionably true that thrombosis can be caused by trauma without any infection, but as to why this should occur we are very much at loss to explain. As to the treatment, I believe the conservative treatment is the best. Occasionally a thrombus can be removed successfully, but surgery should not be attempted unless conservative treatment has failed.

The Child's Chance—In the days of Queen Anne of England it was unusual for a baby to live. Of seventeen children that were born to the queen herself only one survived more than a year.

That was centuries back, but infant mortality declined comparatively slowly until a few decades ago.

Birth rates had to be high if nations were not to have a stationary or diminishing population.

Of every 1000 babies born in the United States now only 66 die at birth.

Medical education is the answer. Physicians know more and know how to apply their knowledge. Parents are better informed. So the average age span lengthens.

In Kansas City last year 3000 volunteer workers cooperated with the local children's bureau in a campaign to improve juvenile health. Forty-nine thousand two hundred and eighteen visits were made in 26,803 homes. Treatment for defects was given in 10,216 cases. Letters of advice were sent to the mothers of 4434 new-born babies and the bureau's dietitian made 4790 personal talks on infant feeding.

That is an index to efforts in hundreds of localities.

The conquest of disease and the banishment of ignorance and superstition have become cooperative responsibilities. Such undertakings no longer are regarded as an intrusion into private affairs.

More mothers keep their children, are happy in their possession, and are less anxious as to the menace of sickness. These are not the least of the comforts of the twentieth century.—*Collier's Weekly*.

VISION IN RELATION TO INDUSTRY*

By E. M. NEHER, M. D.
Salt Lake City, Utah

THE condition of the eyesight of employees is the most important factor affecting the output of the industries of our country. Until very recently it has received little consideration other than tests for the acuity of vision and color blindness by the railroads and a few of the larger manufacturers. Those corporations that recognize their duty in determining and conserving the vision of the employees not only become contributors to the health and upbuilding of society, but find production increased, the quality of workmanship improved, less material wasted, fewer accidents occurring, greater individual effort made possible and, above all, a better morale, greater comfort and happiness among the employees when off duty and when at work.

Physicians and an increasing number of employers are unanimous in the opinion that the eyesight of the workmen should be conserved, but it is difficult to find a satisfactory method of accomplishing this. In my opinion the methods should include: (1) Legislation. (2) Vision testing and proper correction of defects. (3) Protection of eyes against injuries. (4) Education.

LEGISLATION

Intelligent legislation—fair to both employee and employer—is the primary factor in inaugurating safety measures. This is accomplished best by establishing an industrial commission which shall be given full power to require the necessary accident reports, to make and enforce safety measures, and to administer equitable compensation, rather than to wait on the slow wheels of a political legislature which meets once in two years.

VISION STATISTICS

Proper eye examinations should be made of new employees and frequent re-examination of old ones. Systematic testing of vision has not been generally done, as is shown by the most accurate statistics I was able to obtain. The Eyesight Conservation Council of America sent inquiries to a selected list of 750 companies and commercial establishments having a safety and a welfare department. Replies were received from 250 companies some of which were too meager to be useful, and only 170 reports that could be analyzed. Of this number ninety-five companies stated eye tests were given, but only twenty-one companies reported periodic examination. Forty companies, representing twenty different kinds of industries, located in various parts of the United States, gave the result of eye examinations of 204,817 employees. The tests used ranged from the most superficial to the more thorough, with an average of 44.3 per cent with defective vision. The Buick Motor Car Company found that 56 per cent of applicants for employment have subnormal vision, while 48.5 per cent of the 60,000 Ford employees

* Read before the Pacific Coast Oto-Ophthalmological Society, Spokane, June 6-8, 1927.

TABLE 1—UTAH STATE INDUSTRIAL COMMISSION
REPORT OF NINE-YEAR PERIOD ENDING JUNE 30, 1926

		Compensation	Medical	Total
Total number of accident cases.....	101,463	\$5,547,107.00	\$1,514,638.00	\$7,061,745.00
Total permanent disability.....	19*	.....	.....	285,000.00
Total permanent disability, eye cases.....	16†	.....	.....	245,000.00
Total permanent partial disability.....	1,359	1,019,317.00	665,555.00	1,684,872.00
Total permanent partial disability, eye cases.....	222	.....	.....	.....
Partial loss of vision.....	62	36,681.37	8,558.00	.....
Entire loss of vision.....	87	141,214.45	19,496.09	.....
Loss of eye (enucleation).....	73	128,096.60	14,863.73	348,913.24
Temporary eye injuries (estimated).....	7,321	7,321.00	21,963.00	28,284.00
Total number of eye cases.....	7,560, with a total cost of.....	.....	.....	622,197.24

* Estimated cost, \$15,000 each.
† Estimated cost, \$15,000 each.

examined had lowered visual acuity. Seven companies who made a more thorough examination of the eyes of 12,800 employees found 72 per cent with errors of refraction. This study and report of examination of nearly 300,000 employees covers the largest group that has ever been studied, and the results are probably a fairly accurate statement of the defective vision among the 42,000,000 persons gainfully employed in the United States.

The survey showed that in the group of 204,817 examinations only 19.6 per cent were wearing glasses and that many of these corrections were wrong. One company found two-thirds of the glasses which the employees were wearing, to be incorrect. In the report of seventeen companies, employing 83,825 persons, less than 10 per cent were wearing glasses, while 49 per cent had defective vision. A concrete example of corrected vision improving production is shown by the Whiting and Davis Company of Plainfield, Mass., who increased the output of their factory 25 per cent after they had carefully corrected errors of refraction among the employees.

The Public Health Service made a series of visual acuity tests at different ages, and found the percentage of persons with a normal vision increased from six to eighteen years of age and then gradually decreased to forty-five, after which there was a rapid decline due to lowered accommodation, sclerosis of the crystalline lens and pathology in the fundus incident to advancing years. Increasing age especially lowers the vision for close work, and in all examinations, both the distant and the close vision, should be recorded.

WHY VISUAL EXAMINATIONS ARE NEEDED

While we have no statistics showing the definite relation between defective vision and accidents, we may be sure that for our efficiency and safety, good vision both central and peripheral is the most important of our special senses.

The presence of defective vision, its causes and remedies can be determined only by competent physicians. Each worker is a unit of the great industrial machine, and defective vision endangers the safety of fellow workers also. His men-

tal and physical fitness, which necessarily includes proper vision for the position for which he has applied, should be determined by examination. Some employees and labor organizations are adverse to physical examinations. Nothing is more absurd. Such objectors are enemies of right and justice and the safety of fellow workmen.

The visual requirements, both with and without glasses, necessary for the different classes of positions are not here being discussed. It is a great injustice to an applicant for the employer not to take into consideration his vision as corrected by glasses. However, since many State Industrial Commissions do not reckon the acuity of corrected vision when naming the amount of compensation, the employer may not want to employ a man with subnormal vision. A rule is said to be a poor one which will not work both ways. Since it is shown by statistics quoted in this paper that from 44 to 72 per cent, depending upon the thoroughness of the test, have defective vision without the use of glasses, is it right and just to employer or insurance carrier to assume every injured eye had normal vision previous to the accident and to make the compensation award on this basis? As example, in my own practice, a man forty-eight years of age had a small foreign body embedded in his cornea. At the time of removal it was noted that his vision was very low in the injured eye. Examination of the fundus showed an old rupture of the choroid. The man denied any previous injury until the x-ray showed twenty-five small metallic shadows embedded in the skin of the face. This he then admitted resulted from an explosion years previous to his present employment, at which time the choroid was undoubtedly injured. Should the man be paid for the loss of his eye on account of the recent foreign body in the cornea? It is just as reasonable for a man who receives a scratch on the stump of a leg which was shot off during the World War to be compensated for the loss of his limb on account of the recent injury to the stump.

EYE PROTECTION

The protection of the eye against hazards should be a most important factor of the safety

department of every industry. A great many of the eye-protection devices must be worn by the workmen in the form of glasses or goggles. The type to be used depends on the nature of the work to be performed. The National Safety Code for the Protection of the Head and Eyes of Industrial Workers, published in No. 2 of the Bureau of Standards Hand Book Series, divides the different operations or processes in which it is necessary that the operator be given protection for the head and eyes into nine groups, each of which requires a protector having distinctive features. These types were selected as the result of the experience of a number of physicians, safety engineers and goggle manufacturers. Many laborers object to goggles, alleging inconvenience and discomfort. These supposedly objectionable features can be largely overcome by properly fitting and by having refractive errors ground in the glass. Naturally if the workman has a defect of vision, unrecognized but handicapping to some degree, the plain glass would apparently serve to emphasize this defect. Correct refraction in the glass solves this objection. Properly corrected vision lessens headaches and nervous irritability, lessens loss of time and energy and obviates eventual loss of sight.

The absence of proper eye protection in industries is shown by the great number of eye accidents reported. The National Safety Council estimates 250,000 eye injuries annually. In California, during the four-year period of 1917 to 1921, of the 9328 permanent injuries reported 13 per cent involved the eyes. The American Foundry Association reports that 20 per cent of all non-fatal accidents occurring in foundries are eye injuries, of which 28 per cent resulted in the loss of one eye and 10 per cent in the loss of both. This same report states that 95 per cent of the accidents could be prevented by the use of goggles and other protective devices.

There are far too many eye accidents in the industries of Utah. In both the metal and coal mines we find the men especially adverse to wearing goggles, stating that perspiration and air currents cause the lenses to fog. These and other objections can be overcome by using the correct type, by wearing a sweat-absorbing band around the forehead, and coating the lenses with one of the various substances used to prevent the glass from fogging. The use of the proper eye-protective devices by the employees of Utah would reduce eye injuries 90 per cent. That this would be no small item is shown by statistics I was able to obtain from the State Industrial Commission through the kindness of the secretary. (See Table 1.)

In making a summary of the figure given in Table 1, we find that during the nine-year period of the existence of the Industrial Commission of Utah, ending June 30, 1926, there was a total of 101,463 accidents, with a paid compensation of over five and one-half million dollars and medical fees exceeding one and one-half million, making a total cost of over seven million dollars for the accidents. In this number are included nineteen

totally permanently disabled, of whom sixteen (84 per cent) have eye injuries with an estimated cost of \$15,000 each, or a total of \$245,000. There are 1359 persons partially permanently disabled, 222 (16.3 per cent) of them with eye injuries, costing in compensation and doctor fees nearly \$350,000: 21 per cent of the total cost expended for this class of injuries. In addition there are 7321 temporary eye disabilities, at a cost of \$28,000. This makes a total number of eye injuries 7560 (7.5 per cent) and costing nearly \$625,000, or 8.7 per cent, of the total amount expended by the commission. Yet this huge sum is insignificant when compared to the great amount of suffering, serious disability and great loss, not only to the unfortunate employee, but also to those depending upon him for support and comfort. How appalling these facts are when we realize that nine out of every ten of these accidents could have been prevented by enforcement of proper safety measures.

EDUCATION

Great possibilities for elimination of the destruction of vision lies in education. Educate the state to realize its humanitarian and economic obligation by establishing and enforcing adequate safety-first measures. Safety inspectors should be of sufficient number to supervise the small plants as well as the large. They should not only be capable of knowing their duty, but should have the temerity necessary to enforce safety measures.

PROTECTION AGAINST INJURY

The management of industries should be instructed in the economic value of eyesight conservation. Every official should be on the alert and willing to provide necessary safety appliance to protect the eyes of their employees. They should appreciate that every dollar intelligently invested in safety devices means a saving of many dollars in compensation and a continuation of the uninterrupted service of valuable employees.

Education of the employees, especially of the so-called "hard-boiled" type and the ignorant laborer is difficult, but when all the companies require the observance of safety measures these types will soon fall in line. The following suggestions may be helpful: Bulletin boards should be placed where men frequently see them, and when necessary the bulletins should be printed in other than the English language. The most effective bulletin photograph taken is made from some experience within the plant, for example, a photograph of a fellow workman wearing a pair of safety goggles which prevented injury to his eye. Besides this place a contrasting picture, with appropriate description, of an unfortunate man who lost an eye because he did not wear the proper protection. On these bulletin boards can be placed warnings: warnings against the danger of infection from allowing a fellow workman to remove a foreign body from his eye with a match or a soiled handkerchief; warnings against danger to

the eyes of an observer who watches an electric welder or cutter at work.

Safety bulletins may be posted, such as:

"The man who loses one eye sometimes wears the other out looking for a job."

"Once we knew a man who could not see the need of wearing goggles and now he cannot see the goggles."

"Two good eyes are all you have. Save them."

In conclusion, the science of human rehabilitation has developed artificial hands, arms, and legs which can do almost anything the human members can do, but no one had developed an eye that can see, nor do we even dare to predict that a day will come when it will be possible to replace the human eye with one that is capable of interpreting rays of light. This fact alone makes the protection and conservation of vision in industry a most important subject.

Boston Building.

RHEUMATIC ENDOCARDITIS IN CHILDREN: ITS DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS *

By A. J. SCOTT, M. D.
Los Angeles

DISCUSSION by Alfred H. Washburn, M. D., San Francisco; Robert Ewart Ramsay, M. D., Pasadena; Andrew J. Thornton, M. D., San Diego.

IN considering this subject we must remember that rheumatism is essentially a disease of childhood, usually occurring after the age of two. White¹ reports several cases under two years in his Boston series. But these only call our attention to the fact that this disease *may*, though it does not often, occur under this arbitrarily set age period. Hence when a murmur is heard over the heart at this early period, rheumatic endocarditis must be considered and a careful history taken and other physical findings sought.

The attack may be an acute one, or an acute exacerbation of a chronic affection, or an old lesion.

There is usually a history of a preceding or an associated rheumatic attack with its painful joints and temperature, or an accompanying or preceding attack or attacks of chorea, or tonsillitis with or without enlarged tonsils and enlarged cervical glands.

PHYSICAL FINDINGS

The physical findings are divided into those of the acute, the chronic and the decompensation stages.

(a) Those for the *acute* are: (1) Temperature increase. (2) Associated arthritis, tonsillitis, or chorea. (3) Precordial pain, which may or may not be present, depending upon the amount of carditis. There may or may not be a pericardial friction rub present. (4) Increased pulse rate. (5) An increased area of cardiac dullness. (6) The presence of a murmur, its location and trans-

mission. In acute attacks the murmur is usually limited to the mitral valve, is systolic in time and transmitted to the axilla. The presystolic blow of mitral stenosis is rarely heard in early childhood, as the scarring of the valve and its subsequent contraction takes time. It is essentially a murmur found in older children. (7) The associated symptom of rheumatism, such as subcutaneous nodules is rare in our climate. Petechia or purpuric spots, however, may be found in very septic children. (8) The leukocyte count is usually increased. (9) The spleen may or may not be enlarged, depending upon the severity of the infection and the duration of the disease.

(b) For *chronic* cases the physical findings are: (1) The detection, or absence, of thrills over the precordium. (2) The type of cardiac impulse, whether or not it is heaving as in marked hypertrophy of the heart muscle. (3) The location of the apex. If it is inside the midclavicular line it indicates no hypertrophy of the left ventricle; if outside this line it shows an increase in the size of the heart. (4) The type of the pulse, whether it is rapid and thready, or full, or of the Corrigan type as seen in aortic regurgitation and palpable even over the peroneal arteries in the ankles. (5) The detection, location and transmission of a murmur or murmurs. (6) The six-foot x-ray plate is valuable in checking the physical findings. The teleroentgenogram shows particularly the protrusion backward of the heart on the spine. The history of chronic cases is most important.

(c) In the *stage of decompensation* where the infection has so damaged the heart muscle that it cannot function properly even when carefully treated, we have the symptoms and signs of: (1) Dyspnea, especially on exertion. (2) Cyanosis. (3) Increased area of cardiac dullness. (4) Edema of lower extremities. In advanced stage anasarca with râles in the lungs, enlarged liver of passive congestion, and all the distressing symptoms of cough, restlessness, insomnia, and loss of appetite occur. (5) The pulse is usually rapid and thready with more or less irregularity. (6) Murmurs may be heard at all valves and there may be even a typical embryocardia. (7) The x-ray shows the heart is markedly enlarged.

DIFFERENTIAL DIAGNOSIS

We must rule out congenital lesions and functional or extracardial lesions and the symptom complex seen in certain cardiac neuroses.

From Congenital Lesions—(1) There is usually an absence of history of rheumatism although we must remember that children with congenital heart lesions may develop rheumatism and acute endocarditis. The same applies to tonsillitis and chorea. (2) The history of more or less cyanosis from birth. The same applies to clubbing of the fingers and toes. (3) There may or may not be a palpable thrill to the left of the sternum in the second or third intercostal spaces. (4) The murmur is usually harsher, louder, and may be transmitted all over the chest rather than in any one direction. (5) The area of cardiac

* Read before the Pediatric Section, California Medical Association, at its Fifty-Sixth Annual Session, April 25-28, 1927.

dullness is not increased, in contradistinction to that of a lesion of infective origin with a murmur of the same intensity. (6) These murmurs are usually basal. (7) The teleroentgenogram gives a characteristic picture.

From Extracardial Murmurs—These are usually systolic in time and are rarely transmitted. They change or disappear with change of position.

They are affected by respiration, that is, they may be made to disappear on inspiration or expiration and are usually apical. These murmurs are frequently found in undernourished children, where there may be more or less anemia, or they may be found in the rapidly growing child or in one who is very active or vigorous physically. Such instances seem to be due to purely muscular contraction. These sounds frequently disappear after exercise or when the heart rate is speeded up.

From the Neuroses—Here are certain subjective symptoms seen in almost any child who is hampered by an overanxious mother or nurse, or by a medical adviser, who, having detected a slight, purely functional or extracardial murmur, has ordered a restriction of physical activities and so subjected a child, otherwise unhandicapped, to a life of more or less invalidism. These symptoms may be one or more of the following: dyspnea; palpitation; precordial pain, especially after exercise, frequently due to gases in stomach or bowels; dizziness, frequently from the same cause; fainting, seen often in hysterical girls, especially if they are constipated; paresthesias—hysterical in origin; choking; nervousness; fatigue; irregularity of the heart.

To determine cases of neuroses the history is most important and next in value is the physical examination. In these cases no murmur of organic origin is found, only an extracardial or so-called functional one. The exercise tolerance test, x-ray, and electrocardiograph are confirming aids.

TYPES OF THE MURMURS

The vast majority of organic lesions in childhood are (1) mitral regurgitation—transmitted to the axilla, with increased heart dullness outside of the midclavicular line. (2) Mitral stenosis in older children and young adults where the scar of the mitral valve has contracted—the precordial murmur and its accompanying thrill palpable in the third or fourth left intercostal space. (3) The most rarely found murmur is that of aortic regurgitation with its palpable pulse in the ankles, Corrigan type in the radials, pistol-shot sound over the arteries, hypertrophy of the left ventricle and harsh diastolic aortic murmur transmitted toward the apex.

In conclusion make a diagnosis on consideration of age; a careful history of an infection; careful physical findings, and then, when possible, confirm by x-ray and teleroentgenograms. But

use eyes, ears and finger, common sense and thought.

1401 South Hope Street.

REFERENCE

1. White, Paul D.: The Incidence of Endocarditis in Earliest Childhood, *American Journal Disease of Children*, Vol. 32, No. 4, October, 1926, p. 136.

DISCUSSION

ALFRED H. WASHBURN, M.D. (University of California Hospital, San Francisco)—There are a number of points in Doctor Scott's paper on the diagnosis of rheumatic endocarditis which merit special comment. I shall take them up in the order in which they occur.

The symptom of precordial pain is not a common complaint in children, so that when it does occur in an acutely ill child it is significant. It is worth noting that this cardiac pain mentioned by Doctor Scott as a sign of acute carditis is frequently referred at first, not to the precordium, but to the abdomen. During the past four years I have observed three such patients from whom normal appendices have been removed at the onset of an acute carditis.

It is interesting to note that the subcutaneous nodules are rarely found in southern California, for their occurrence in the San Francisco clinics is by no means unusual. In fact the well-known observations concerning these nodules, published by the late Doctor Bronson, were made at the University of California clinic. There can be no doubt that climate plays a large part in many of the manifestations of rheumatic fever.

The differentiation of congenital from rheumatic lesions may at times be very difficult, for cyanosis and clubbing of the fingers may be absent. The area of cardiac dullness may be increased. Nor can I agree with Doctor Scott in his description of the murmurs. Those from a congenital lesion, while they are almost always systolic in time, may be of any degree of loudness or harshness, may be localized, transmitted only in one direction, or generalized. Pulmonary stenosis and a patent interventricular septum, the two most common lesions, frequently produce murmurs whose point of maximum intensity lies between the sternal margin and the apex. Such murmurs may be indistinguishable from those of organic lesions. Two characteristics of murmurs caused by congenital lesions which may materially aid in making a diagnosis are: (1) During repeated observations the murmur will be found to remain almost constant in its quality, locality and intensity; (2) the murmur is usually dissociated from the sounds and does not even partially replace the first sound as an organic murmur of equal intensity is almost sure to do. Unfortunately neither the x-ray nor the electrocardiograph will give us sure proof of the congenital origin of any given cardiac abnormality, valuable as they both are as aids to diagnosis.

Doctor Scott gives very little space to the differentiation of organic from functional murmurs. He disposes of these latter under the heading of "extracardiac." But surely there is a whole group of functional murmurs which are due to abnormalities within the heart even though there is no organic lesion. The mitral regurgitation caused by a relative insufficiency as in a case of severe anemia illustrates well this type of functional murmur. The frequency of such murmurs associated with nutritional disturbances, chronic infections and the like, may easily be demonstrated in any children's clinic. The problem of differentiating such murmurs from those caused by a damaged mitral valve may be a most difficult one, necessitating a most careful consideration of all the factors in the history and physical examination, including the tolerance of the heart to exercise. Sometimes it may be impossible to make a diagnosis until the physician has been able to observe the result of removing such

complicating factors as chronic infection, anemia, or malnutrition.

The cardiac neuroses which Doctor Scott has discussed so completely might well be included under the heading of "functional disorders." In this instance the primary trouble consists in an instability of the nervous system. Thus we see that disorders in almost any other system of the body may be reflected in abnormalities of the heart. These must be clearly distinguished from those cardiac disturbances due to organic lesions.

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ROBERT EWART RAMSAY, M. D. (65 North Madison Avenue, Pasadena)—When we speak of rheumatism we invariably include arthritis in the clinical picture, and usually we emphasize this element to the point where the heart is just one of the organs affected, even if it is the most important organ sharing in the infectious process. Doctor Scott devotes too little attention to arthritis in view of the fact that his title and introduction indicate that this is an inseparable part of his thought. As a matter of fact, arthritis and endocarditis may have a common focus of infection and a single causative agent and may exist together or separately. Since it is so difficult to accept a history of past arthritis, and equally difficult to evaluate a present arthritis, the real emphasis is on the causative agent and its effect on the heart. Infection of the tonsils, rather than arthritis, is commonly associated, and it is the study of diseases of the throat, rather than of the joints, which has helped to illuminate the question of endocarditis.

The existence of heart murmurs in the malnourished or rapidly growing child is deservedly emphasized in this paper. A diagnosis of heart disease is too often made, with the result that the child and its parents develop neuroses. I have in mind a young girl who was greatly incommoded and whose parents were much worried by such a diagnosis which might have been obviated if the physician who was responsible had known the normal behavior of a child's heart and had applied a few simple measurements and tests.

Doctor Scott has presented his subject in terse, forcible form. Clinical experience is evident in every line. It constitutes a challenge to keener observation and more accurate diagnosis.

❧

ANDREW J. THORNTON, M. D. (3235 Fourth Street, San Diego)—In the discussion of heart disease in children we should not limit consideration to the endocardium. One's mind should be open to the possibility of associated myocarditis or even a pancarditis. In fact I believe that the heart muscle is more often simultaneously involved with the endocardium than is generally supposed. Also in many cases of pericardial scratching sound without pain may be heard which is most likely evidence of a pericarditis.

We see very little frank rheumatism in San Diego, but much of the vague joint pains, leg ache, and complaint of pain in the "stomach." I have in mind one case in which the abdominal symptoms were so prominent that the heart condition was overlooked for several months.

Increased pulse rate and a persistent rise of temperature in the presence of infected tonsils or nasopharynx, even without demonstrable enlargement or heart murmur, should make us suspect very strongly a beginning heart disease. These early cases are the important ones to catch, as they are so easily overlooked. I believe that many of the so-called primary infections are in reality second attacks.

Differential diagnosis of organic heart disease from congenital or functional I agree is often very difficult or even impossible without observation over a period of time, but when there are reasonable grounds for suspecting infection we should not be afraid to run the risk of a little worry on the part of parent or patient. Heart disease is such a serious thing that

the whole truth should be known by the parent and some responsibility put upon the patient when old enough.

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DOCTOR SCOTT (closing)—The pertinent comments on this subject by Doctor Washburn are well taken. It was not the intention in this article to enter too deeply into differential diagnosis except as was necessary to bring out the essential points. No article is so complete but that a discussor can add something of value if he is observant; consequently, I appreciate Doctor Washburn's remarks.

I wish to thank Doctor Ramsay and Doctor Thornton for their comments, but wish again to remind them that this paper was one of a symposium on rheumatic endocarditis, and that the other papers took up some of the details purposely omitted or only lightly touched upon.

CONSERVATION OF HEARING AND THE HARD-OF-HEARING CHILD*

By FRANK S. RODIN, M. D.
San Francisco

DISCUSSION by Isaac H. Jones, M.D., Los Angeles; Fern O. Knudsen, Ph.D., Los Angeles; William C. Hassler, M.D., San Francisco; John A. Bacher, M.D., San Francisco.

ONE of the most serious handicaps to any child is an impairment of hearing. Even a moderate degree of deafness is often an obstacle in the education of the young. One of the chief causes of retardation and inattention in class work is difficulty in hearing.

The term deaf child applied to one who has a moderate loss of hearing is an unfortunate one; the word "deaf" unduly alarms the parents and the child. These children are not deaf; they are hard of hearing, and should be called hard-of-hearing children.

A diminution in the acuity of hearing in early life, if not corrected, often progresses to a marked loss of hearing in later years. The question of the hard-of-hearing child and the rapid method of examining the hearing of children were discussed by Newhart¹ and by Fowler and Fletcher² at the American Medical Association annual meeting held at Dallas in 1926. The methods previously used, namely, the "watch-tick," "whispered

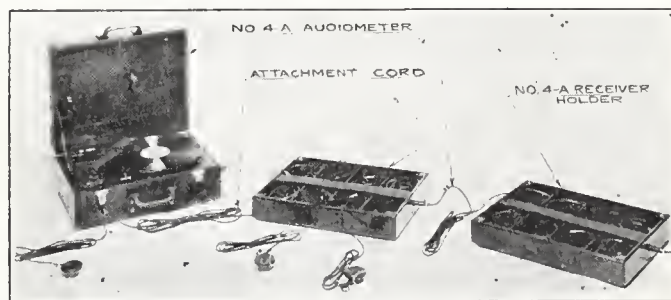


Fig. 1—The phonograph audiometer.

voice," and the tuning forks, are very unsatisfactory and consume too much time. The phonograph audiometer (Western Electric Company, 4-A) (Fig. 1) offers a means by which a large

* From the Division School Health Inspection, Department of Public Health, San Francisco.

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Fig. 2—Testing of children.

number of individuals may be tested in a short time. Briefly stated, the instrument consists of a phonograph and records through which speech vibrations, consisting of numbers, are conducted to the telephone receivers attached to the hearers' ears. Forty persons can be tested at one time. Fig. 2 shows arrangement of such a group. Blank forms (Fig. 3) are distributed to the children on which they write numbers as they hear them. The forms are then compared with master sheets. For a fuller description of this instrument one should refer to the papers by Newhart and by Fowler and Fletcher.

EXAMINATION METHOD

The San Francisco Board of Health, in cooperation with the Board of Education, has undertaken a systematic survey of the hearing of school children, from grade four through junior high school. This will include the children from the ages of 9 to 16 years. Grade four was chosen as a starting point because the children of that age are old enough to cooperate with the examiner.

A technician, supplied by the Board of Education, using the phonograph audiometer, tests not only the children of the above grades, but also those children of the lower grades who, in the opinion of the principal or teachers, have some difficulty in hearing. Those children who have a loss of nine or more sensation units in one or

both ears are retested. The children who on a retest still show a loss of nine or more sensation units in one or both ears are examined by the Board of Health otologist, who makes such tests as he thinks are necessary for the proper diagnosis of the child's ear condition and records them on the back of the blank form used by the child (Fig. 4). The otologist examines the children with two ideas in mind: first, to discover the cause or causes producing loss of hearing; and second, to find children with such impairment of hearing that they are in need of lip-reading instruction. With the first type of children, the parents are notified by a card (Fig. 5) calling attention to their child's correctable defect. The names of children who need lip-reading instruction are given to the Board of Education. A record is kept of the children who have a loss of hearing insufficient to justify lip-reading instruction. These children are retested after a year's time. It is the object of the Board of Health to test all the school children every two years.

Fourteen grammar schools and three junior high schools have been examined, consisting of 3154 boys and 3068 girls, a total of 6222 children. Of these 1064 children, or 17 per cent, showed a loss of nine or more sensation units in one or both ears. On retesting these children, only 533, or 8.5 per cent, showed a loss of hearing of nine

DEPARTMENT OF PUBLIC HEALTH, SAN FRANCISCO, CALIF.

DIVISION SCHOOL HEALTH INSPECTION

HEARING TEST REPORT

NAME

AGE

SCHOOL

GRADE

DATE

19

HEARING LOSS	RIGHT EAR				LEFT EAR				HEARING LOSS
	1	2	3	4	5	6	7	8	
30									30
27									27
24									24
21									21
18									18
15									15
12									12
9									9
6									6
3									3
0									0
-3									-3

Any history of ear trouble?

Fig. 3—Blank form for use by child.

or more sensation units in one or both ears. These children and others who gave a history of a recent ear condition were examined by the otologist, a total of 617 children.

CORRECTABLE DEFECTS

The following correctable defects were found: Hypertrophied tonsils and adenoids, 46; post-nasal discharge and nasal obstruction, 6; discharging ears, 35; impacted cerumen in one ear, 42; impacted cerumen in both ears, 28. Total number of defects, 157.

This is 2.5 per cent of all children tested and 25 per cent of those examined by the otologist. To this list of defects should be added drums with marked retraction, large dry perforations, and granulations, which may give under treatment an improvement in hearing.

There were 208 notification cards sent to the parents. Ninety-nine children were referred for lip-reading instruction, that is, 1.6 per cent of all children tested and 17 per cent of the children who had a loss of nine or more sensation units in one or both ears.

It is unnecessary to discuss fully the relation of the defects found to the loss of hearing. The close relation between hypertrophied tonsils and adenoids to impaired hearing is well known to all otologists. The same relation exists between impaired hearing and postnasal discharge and nasal obstruction.

Although thirty-five children with discharging ears are reported, the number is really much

Date.....19.....

Complaint

RIGHT	LEFT
Whisper.....	
Watch.....	
Weber.....	
Rinne.....	
Schwabach.....	
C-1.....	
C-4.....	
Phono-Audiometer.....	
Audiometer A-2.....	
Ear Drums.....	

Throat Examination.....

Whispered Conversation.....

Comment.....

Recommendations: Lip-Reading Class.....

Card

Retest

None

Fig. 4—Blank form for use of otologist: C-1 = 64 d. v.; C-4 = 2048 d. v.

DEPARTMENT OF PUBLIC HEALTH
San Francisco, California
DIVISION OF CHILD HYGIENE

HEARING CONSERVATION

Name of child.....attending
.....School, was found
to have defective hearing. Kindly have the child examined and
return this card to SCHOOL NURSE.
.....
Health Officer.

RECORD OF PHYSICIAN'S EXAMINATION
(To be filled out by physician and treated as confidential)

Condition of hearing { R
L
Drum membrane { R
L
Treatment recommended.....
Is condition permanent, stationary or improved under treatment?
Remarks
Date.....19..... Examiner.....M. D.

Fig. 5—Notification card sent to parents, and record of physician's examination to be written on the reverse side of card.

larger, as only such were included as had pus in the ear canal at the time of examination. Those who gave a history of recurrent discharging ears and those who were under treatment and had clean ears when examined were not included. Discharging ears under proper treatment can often be cured with resulting improvement of hearing or with the prevention of further loss of hearing. The majority of the children with discharging ears had had little or no medical attention and were not under medical care when examined. Some of the children with impacted cerumen gave a history of a long-standing impaired hearing of the affected ear.

IMPAIRMENT NECESSITATING LIP-READING INSTRUCTION

It is not always easy to decide just how much loss of hearing incapacitates a child so that lip-reading instruction is necessary. Children will vary: one child with normal hearing in one ear and a total loss of hearing in the other ear will have no difficulty in following a whispered conversation, and may even be unaware of the fact that he has one deaf ear; another child with normal hearing in one ear and a moderate loss of hearing in the other, say a loss of twenty-one sensation units, will be backward in his school work, have difficulty in hearing and be absolutely unable to follow a whispered conversation. All factors have to be considered, such as type of deafness, condition of ear drums, improvement expected under treatment, response to whispered conversation, and scholastic record before recommending the child for lip-reading instruction. A consulta-

tion with the principal or teacher may be of aid in making the decision.

The finding of almost one child out of fifty, between the ages of nine and sixteen years, with impairment of hearing sufficient to necessitate lip-reading instruction justifies the systematic and periodic examination of the hearing of all school children to locate defects that, uncorrected, eventually lead to permanent loss of hearing.

490 Post Street.

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DISCUSSION

ISAAC H. JONES, M.D. (1920 Wilshire Boulevard, Los Angeles)—The average case with chronic deafness presents one of the most discouraging problems that come to the otologist. Examination often shows that time for corrective measures has passed. For this reason we all are coming to realize that the great hope lies in prevention, or at least in the early correction of defects that are beginning to produce chronic changes in the auditory mechanism. With this in mind Professor Knudsen and I suggested to the school authorities in Los Angeles a year and a half ago that a systematic study could be made by the means of instruments which could be used by those not trained in otology.

Our plan has been different from that outlined by Doctor Rodin only in the detail of the method of conducting the test. It seems to us that by taking groups of perhaps sixteen one could "weed out" the normals in a minute or two. This would be accomplished simply by getting the percentage hearing for the 64 d. v. and determining the upper limit of hearing. If these are normal it is evident at once that there is probably no conductive defect, nor perceptive defect. These children could be dismissed at once and another series of sixteen similarly tested. Then, for example, if out of a series of four groups of sixteen there should prove to be three or four or more who were not normal, these individuals could have complete precise measurements made. A carbon copy would then be sent to the parents, who could take it to their otologist; the original would be kept for statistical purposes in the hands of the school authorities.

The Western Electric phonograph which Doctor Rodin uses is most ingenious and a very beautiful instrument. It is possible, however, that the quicker test of simply taking the lower and upper tones might not only save time, but give more information as to the nature of the defect than the phonograph test, which is limited to the range of the voice.

Those who have given thought to this subject all agree on the main essential—that systematic measurements with instruments of precision will bring out beginning hearing defects, in many instances perhaps five or ten years before these defects will be so gross as to be noticed by those with whom the children have ordinary conversation. The inauguration of this sort of work is surely a real civic opportunity for service.

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VERN O. KNUDSEN, Ph.D. (The University of California, at Los Angeles)—The work begun by Doctor Rodin at San Francisco deserves the attention of all public-spirited school authorities and otologists. It is difficult to estimate the value which will come from such a survey, but the wisdom of undertaking this

work, especially among the younger pupils, is unquestioned.

The discussion by Doctor Jones, of course, represents my views of the subject. The precise details of the manner in which this work is done is not so important as that Doctor Rodin has actually started this work in San Francisco. Doctor Jones and I have slightly different views in regard to the manner of conducting these group tests, but this should in no way confuse the subject. In the method which we proposed before the Pacific Coast section of the American Otologic Rhinologic and Laryngologic Society at its January, 1926, meeting the data of which are obtained in the quick group test are useful, but must be supplemented by additional measurements. I am inclined to believe this quick group test facilitates both speed and accuracy.



WILLIAM C. HASSLER, M.D. (Department of Public Health, 1085 Mission Street, San Francisco)—For years the Department of Health in its work with the school child has realized the importance of testing acuity of hearing and vision, not only to determine the cause of any deflection from the normal, but also to prevent the results that follow deviations from normal of both sight and hearing and which affect the progress of the child physically and mentally. Though physicians are competent to make examinations, it is impossible to have more than a very limited amount of work done, and as the school population increased the problem grew.

It was therefore with great pleasure that the Board of Health welcomed into the field the advent of the Western Electric Company's phonograph audiometer and placed Dr. Frank H. Rodin in charge of the first work done in this city, a résumé of which is clearly set forth in his paper prepared for the last meeting of the California Medical Association.

We realize there is still debate as to the value of the phonograph audiometer, and argument has been advanced by some otologists that the sound registrations using the lower or upper tones save time in the testing groups and give more information as to the nature of the defects than the phonograph does. This is the opinion of Doctor Jones of Los Angeles in his discussion. We believe that compelling the child to put down on paper the sound he hears from the phonograph registers definitely what he hears and results in less error than any other group tests with which we have had experience.

Of the 6222 children examined, it is interesting to note that a total of 617 were referred to the otologist, and out of these, 157 showed definite defects which were amenable to treatment and correction. Ninety-nine of these children were referred for lip-reading instruction; in other words 1.6 per cent were placed in classes that enable them to obtain instruction which will have a distinct bearing upon their future.

The conclusion of our department work for the fiscal year certainly justifies the extension of our efforts to bring under test the entire school population at the earliest possible moment.



JOHN A. BACHER, M.D. (Lane Hospital, San Francisco)—Doctor Rodin's article clearly expresses the problems and difficulties that are encountered in endeavoring to conserve hearing. Any hearing test at best is subjective and therefore relative, not absolute. Improvements in instruments and their standardization will continue to give us a basis approaching more nearly the normal. The most valuable work along this line can be done if there is some means of locating those children who have only the very slightest degree of loss of hearing. For in these early cases rests our hope of reducing the astounding figure that one in sixty of the school children examined are subjects for lip-reading instruction. Conservation of hearing is entirely a matter of prophylaxis in diagnosing the process early and staying it.

I think it would be a little more intelligible to use percentages of loss of hearing rather than figures

expressing loss of sensation units. I do not believe that the ordinary man reading this paper will understand the dividing line of nine sensation units loss of hearing which is the indication for re-examination. The fact that only half as many had a loss of nine or more sensation units upon the second test as did on the first test shows the importance of the subjective factor in the test and that the second test is the one that is important. I hope that five years from now or that ten years from now the method will have been so improved that hard-of-hearing children will be picked out in even earlier stages, and there will be no such astounding number as one in sixty requiring lip-reading instructions. This success or failure will be dependent in a large degree upon the care and attention which the private or clinic doctor to whom the child is referred gives to the patient, and how nearly normal he makes and keeps the nose and throat.



DOCTOR RODIN (closing)—The importance of examining the hearing of school children is agreed to by the participants in this discussion. Doctors Jones and Knudsen have developed a very ingenious instrument for testing small groups, as mentioned by them. This instrument is based on sound vibrations, but I agree with Doctor Hassler that one cannot always depend upon a child's response to sound vibrations. The child may wish to assist the examiner by claiming that he hears a sound when he does not perceive it. With the phonograph audiometer the child is compelled to write down the numbers he hears. These numbers are then compared with the master sheets and the loss of hearing calculated therefrom.

Doctor Bacher is correct in stating that it would be more intelligible to use percentages of loss of hearing than expressing it in loss of sensation units. The phonograph audiometer is calibrated in sensation units, which is the unit adopted by Harvey Fletcher (see his *New Methods and Apparatus for Testing the Acuity of Hearing*, *Laryngoscope* 35:501, July, 1925), and to convert from hearing loss in sensation units to per cent hearing loss for speech, multiply by .83. It is the intention in future to state on the notification cards sent to the parents (Fig. 5) the percentage of loss of hearing.

Re-examination of all school children every two or three years with a suitable audiometer offers at present the best means of early recognition of loss of hearing, and the stage when treatment is of greatest value. I believe that such examinations with the proper cooperation of the parents, family physicians, and otologists will greatly reduce the number of children requiring lip-reading instruction.

Insects and Communicable Diseases—There are many types of mosquitoes in western states which are extremely pestiferous and their bites may be extremely painful. The salt-marsh mosquitoes are particularly aggressive, causing the keenest sort of discomfort to campers. While the bites of the anopheles mosquito may produce malaria, the bites of most other types found in the western states are seldom serious in themselves. They may lead to blood poisoning through scratching with the finger nails in an attempt to relieve the irritation, which is often very intense. To relieve the irritation, ammonia, glycerin, alcohol, or iodine may be applied. An application of moist toilet soap is also said to be effective in affording quick relief. Touching the bites with ordinary moth ball is also said to be effective. A weak solution of carbolic acid—about 2 per cent—is also useful in stopping the itching of a mosquito bite. Campers who visit districts where mosquitoes abound should carry a sufficient supply of ordinary mosquito bar in order that they may be protected against the attacks of these insects. This offers the best sort of protection.—*Weekly Bulletin, California Department of Public Health.*

THE ENVIRONMENT DURING PREGNANCY*

By J. MORRIS SLEMONS, M. D.
Los Angeles

DISCUSSION by Edward N. Ewer, M. D., Oakland;
Henry A. Stephenson, M. D., San Francisco; Norman H.
Williams, M. D., Los Angeles.

THE first of the Hippocratic Aphorisms declares, "The physician must not only be prepared to do what is right himself; but also to make the patient, the attendants, and externals cooperate." The recognition of the environment as a factor in medicine, then, is no modern innovation; it may fairly claim both ancient origin and honorable descent. More than formerly, perhaps, the principle involved now receives its proper emphasis, especially in the practice of obstetrics with conscientious prenatal care. However, for a clear statement of the responsibility the obstetrician assumes at the present time, I doubt whether the words of Hippocrates could be improved. This responsibility the physician tries to meet faithfully, as well as more competently, with increasing knowledge and experience. Familiar with this attitude, I have selected for discussion some of the influences our way of living may have upon the successful practice of obstetrics.

Environmental changes, naturally, call for new medical viewpoints. These viewpoints, we may think, are reached slowly by the profession; and yet, conservative as he is, the physician gives up tradition much more rapidly than does the layman. Various features of medical theory and practice outgrown by the profession retain the confidence of the laity for a long time, and become the basis for a good deal of the free, friendly, and often inappropriate therapeutic advice which people give to each other and which is often exasperating to physicians. If their historical origin be kept in mind the disturbing suggestions made to our patients "through the back fence" may lose some of their irritating qualities; then, too, it will become a simpler matter to justify rational methods of hygiene.

TECHNICAL KNOWLEDGE NOT SUFFICIENT

The competent supervision of pregnancy requires more of the obstetrician than purely technical knowledge in his special field. Among other things he must be familiar with popular tendencies in the way people live. These change from generation to generation—sometimes more than once in a single generation. In a period of rapid change like the present the obstetrician may find it difficult to keep up to date; but he must do so if he would honestly advise his patients regarding problems of such widely different character as, for instance, those relating to transcontinental travel and to social engagements at home. If there was ever a time when the prospective mother might be fairly told to do as she pleased, certainly it is not true of our age.

Consider the motor car, a mischievous agent during pregnancy, that never tempted our moth-

ers. Its use, I find, must be discussed routinely and the hazard emphasized to every patient. Intending to err on the side of safety the directions offered are: first, avoid rough roads; second, do not exceed a speed of twenty miles per hour; and third, limit a ride to one hour. Women who have experienced a miscarriage, and a few others, are advised to give up automobiling altogether. Before long I anticipate the need of similar directions regarding the airplane. Indeed inquiries about it are occasionally made already. Thus far, as you know, we have no adequate basis for advice, and women willing to risk transportation by air during pregnancy must regard the outcome as the result of an experiment.

For obvious reasons the question of athletic sports will be raised more frequently in California than in the East; especially with regard to swimming, golf, and tennis. In a general way, very conservative advice is desirable; and, to my thinking, we must lay stress on the need for rest, not exercise, at least in this locality. Out-of-door recreation needs no insistence here. On the other hand the favorable conditions of climate actually provoke a tendency to overdo. It is my custom, therefore, to emphasize the value of systematic periods of relaxation and rest, urging an hour in bed, morning and afternoon of every day. This radical rule may represent a prejudice on my part, though I think not. The most gratifying results of my professional experience are credited to this régime, often practiced even more intensively. In some instances my patients have submitted to strict confinement in bed month after month in order to safeguard pregnancy.

THE PREVENTION OF MISCARRIAGE

A prolonged period of rest serves as an effective precaution against obstetrical accidents not infrequently. Its reasonableness requires no justification in cases of organic cardiac lesions. Here the heart, already drawing upon its reserve, becomes very sensitive to the additional work incident to pregnancy. Without proper care one of several unfortunate results will ensue—miscarriage, a break in cardiac compensation, or a maternal death. The best protection against a complication of this kind is elimination of the exertion of routine daily life.

Similar benefits follow enforced rest when a patient has a low reserve kidney or arterial hypertension with or without a trace of albumin in the urine. Even though term should not be reached, the pregnancy may often be carried to the time when the fetus is viable and delivery can be effected safely for mother and child. If such patients are allowed to do as they please they are apt either to abort spontaneously in the early months, or to require hurried treatment later, with the sacrifice of the fetus.

A third type of case prone to miscarriage or premature delivery is one in which the underlying pathological lesion pertains to the decidua. The glandular elements of the uterine mucous membrane are increased both in size and number. With this setting only a weak and insecure attachment is provided for the ovum. Only great

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caution—the strictest kind of inactivity—will prevent its dislodgment; negligence often causes what has been called “the habit” of miscarriage.

In the preceding groups cardiac, renal, or uterine lesions have presented the recognized basis for the complication. A fourth group, no less distinguished for the unfavorable, premature termination of pregnancy, probably has no anatomical foundation—at least none has been identified. The responsible defect apparently is functional. I refer to cases where the uterus proves to be exceedingly irritable, falling into contraction upon slight and unexpected stimulation, not infrequently at the same period of successive pregnancies in a given individual. This type of patient—often high strung, neurotic and inclined to move restlessly about the whole day long, sometimes without purpose—this type of individual must cultivate sedentary habits if she would overcome an inherent tendency toward miscarriage. Present-day influences are not helpful here; they are calculated rather to exaggerate the difficulties due to temperament. For such individuals a fixed determination to forego every duty or diversion entailing harmful activity, and the adoption of routine periods of rest, will provide a degree of insurance, not always adequate, however. The maximum protection is secured through rest in bed until the danger point has passed.

An extended period of rest, I wish to make clear, has been found unavailing in cases where repeated miscarriage was attributable to a chronic infection of the endometrium. The régime in question has then served to prolong the pregnancy beyond the time when otherwise it would have terminated, but not sufficiently for the fetus to mature. Specifically, in three instances of recognized decidual endometritis with consistent rest in bed, pregnancy reached approximately the sixth month, whereas previously with indifferent care miscarriage occurred between the second and fourth month.

Successful results which, as I said, have proved most gratifying have been secured in nine patients, distributed as follows: three with cardiac; two with renal insufficiency; one with glandular hyperplasia; and three with irritable uterus, presumably, as no anatomical basis was found to explain repeated miscarriages. After an experience of from two to four pregnancies terminating in miscarriage these patients reached term, or nearly so; because, so far as I was able to determine, they kept to bed, in one instance for a period of six months. The difficulties encountered with this exacting régime probably I know better than those who have not employed it. Only the well-to-do, it will be said, can meet such rigid requirements. If true the fact will not discount the value of the responsible therapeutic principle.

IMPORTANCE OF GIVING EXPLICIT INSTRUCTIONS

Certainly it will mean disappointment if we expect persons of limited means with manifold domestic responsibilities to make great sacrifices for the sake of pregnancy. None the less, irrespective of her station, the prospective mother

deserves the warning to minimize household activities and the exertion incident to the care of a family, especially of young children. The recommendations made should fit the case. Directions of this kind cannot be left to generalization. A typewritten or printed routine offered indiscriminately may be useful, but must be supplemented, because each individual presents her own peculiar problems that demand separate consideration and specific advice.

MENTAL HYGIENE

During pregnancy, as at other times, the environment has a mental as well as a physical significance. The practical bearing the patient's state of mind has upon her welfare we, as physicians, acknowledge; and then neglect. Our negligence affords other agencies the opportunity they are quick to accept.

What shall we do? Surely, more than at present, for what we now do is virtually nothing. A well-directed and progressive step it would be if in gathering facts for the medical history we indicated by our questions that genuine significance attaches to the everyday life of the individual. In that way something of importance will be learned about the kind of amusement she prefers, her social obligations, the domestic problems that worry her, and in a general way the influence of the surroundings where she lives. To improve the environment may not be a simple task; but it will certainly be impossible to do so until we know what it is. One individual may need more time away from home; another more reading or reading of a different kind; a third perhaps suffers from too much diversion. Not infrequently interviews will be required with the husband, with relatives, or with friends who are in a position to give help. These are not trivial matters; none of you will regard them so if you recall a wretched patient, worn out, not with physical ailments, but with mental anxiety attributable to an unsympathetic husband, an interfering mother-in-law, or troublesome neighbors. Such problems may not be solved invariably. We should hardly expect them to be. Efficiency will come within reach, however, when we recognize that the environment is a factor in the successful management of pregnancy and give it honest consideration.

INFLUENCE OF SO-CALLED MATERNAL IMPRESSIONS

It is needless to remind a professional audience that unfavorable mental influences bear no relation to congenital deformities of the fetus. Yet, laymen cling to the doctrine of maternal impressions—an admirable illustration of the fact that a disproved medical theory loses popular credence very slowly. For many years distinguished physicians accepted without question this doctrine, which, thanks to scientific study, is now untenable. We have learned that the fetus suffers disease before birth which accounts for some of the phenomena formerly attributed to the mother's disturbed state of mind. For other defects embryological development gives a satisfactory explanation. Finally, anatomical studies—the dem-

onstration that there are no nerves in the placenta as well as no vascular channels through which blood passes from the mother to the fetus—exclude the existence of any path that psychic stimuli could possibly follow. And even though one existed its use as an agency in transmitting maternal impressions would be limited to a very short period, for the external form of the embryo has been determined by the end of the first seven weeks of pregnancy.

Nevertheless, even though discredited completely by sound medical teaching, the doctrine of maternal impressions still finds faithful adherents among the laity. When this lay attitude of mind with this viewpoint will disappear, would be difficult to foretell.

819 Pacific Mutual Building.

DISCUSSION

EDWARD N. EWER, M.D. (251 Moss Avenue, Oakland)—It is agreed that few women receive adequate prenatal care. The number is increasing as more seek specialists, but perhaps attention is still too often limited to periodic urine examinations to forestall the late toxemias. The phases of the subject handled by Doctor Slemmons are seldom mentioned and, considering the character of discussion evoked, evidently not always appreciated.

Not only automobile riding and driving, but long trips by rail have been followed by abortion often enough to attract the attention and concern of many obstetricians. To cite an instance: A woman after a train trip to New York had a hemorrhage upon arrival in her hotel. She recovered, finished her visit, and upon completion of the return journey flowed again and aborted. I have also seen several abortions during the last year which both the patient and I believed were caused by long automobile rides.

During the process of evolution the uterine activities became adjusted with reasonable facility to the exercise of walking, presumably upon "all fours"; but it is conceivable that upon assuming the upright position difficulties may have arisen which are still traceable in the proneness to abortion of some individuals. However, habit has made walking the safest exercise for pregnant women at present, and what it will do for the motor car and airplane rests with the future.

Many of us have seen patients who only succeeded in pregnancy by prolonged rest in bed. In one instance after six miscarriages between the second and seventh months of gestation, the patient went to term by remaining in bed continuously from the moment she discovered her condition. Another succeeded in the same way after three miscarriages. I have had many others recover from threatened miscarriages after shorter stays in bed. I am interested in the advice given in this paper about rest. Certainly excessive physical exertion during pregnancy is not desirable, and it is questionable whether earlier athletic training ever offers any good promise for the obstetric future of young women. In my experience there is an unduly high percentage of difficult labors among athletic women.

The author's remarks about explicit instructions and mental hygiene are important. Prenatal care of the worthwhile sort is individual advice given by the intelligent and interested obstetrician for the solution of particular problems as they arise. Those instructions which can be generalized and delivered in pamphlet form to the average prospective mother, while popular at present, are like the shotgun prescription—expensive and of limited value.

H. A. STEPHENSON, M.D. (490 Post Street, San Francisco)—The subject discussed by Doctor Slemmons is one which has received increasingly more attention in the past few years. Analysis of mortality statis-

tics has shown the marked advantage which comes as a result of intelligent prenatal care. The new phases which are discussed by Doctor Slemmons are timely and still other phases will, from time to time, present themselves. The effort of the conscientious obstetrician should be to anticipate, understand, and impart to the obstetrical patient these problems as they present themselves. In meeting these new problems one should not forget, of course, the old ones, particularly the one of maternal impressions, which is still steadfastly clung to by a considerable proportion of obstetrical patients.

Regarding the prevention of miscarriage, we heartily agree with Doctor Slemmons' suggestions. We have also in our own practice paid some particular attention to the health and virility of the husband, particularly in those cases where repeated early miscarriages have occurred. In a large percentage of such cases we find that the spermatozoa are abnormal. Oftentimes the condition may be relieved by proper treatment by a competent urologist. Following such a course of treatment, full-time pregnancies with happy results have followed.

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NORMAN H. WILLIAMS, M.D. (1052 West Sixth Street, Los Angeles)—This subject so admirably presented by Doctor Slemmons is seldom emphasized in medical literature. With the development of prenatal supervision, however, the reaction of the female organism to factors of environment is receiving increasing recognition and presents a definite problem for the obstetrician. Blood pressure and urinalysis will retain their rightful place, but more and more attention will be devoted to tendencies in civilization, especially referable to instability in physical stamina and nerve tension. Rapid changes brought about by new methods of locomotion, a strong American tendency to haste and hurry, the worship of the material rather than the spiritual, the capriciousness of matrimony, the trend of higher education, knowledge and practice of birth control, and the strain of economic conditions, all have their share in the deleterious effects upon the prospective mother; and, as such, on the part of the attendant they require insight, tact and proper consideration in treatment.

JUVENILE ACNE—ITS TREATMENT*

By ERNEST D. CHIPMAN, M.D.
San Francisco

DISCUSSION by E. D. Lovejoy, M.D., Los Angeles; George H. Becker, M.D., San Francisco; Howard Morrow, M.D., San Francisco.

THE term "acne vulgaris" as commonly used includes three types: the juvenile, the adult, and the cachectic. As the disease is most often met in the juvenile form, this discussion will be limited to that group.

GENERAL CONSIDERATIONS

In the juvenile form of acne vulgaris the dominant etiologic factor is the age of adolescence. The essential pathologic change is an increase in the size and functional activity of the pilosebaceous system. This leads to the formation of comedones, which are the primitive elements of acne. In the comedones may be found organisms variously called the acne bacillus of Unna, the microbacillus of seborrhea of Sabouraud, or the bacillus acnes of Gilchrist. Although these bacilli are constantly present in comedones it has by no means been proven that they are the cause of the lesions; it is quite possible that they are only casual residents therein. Many comedones be-

* Read before the California Medical Association at its Fifty-Sixth Annual Session, April 25-28, 1927.

coming secondarily infected with pyogenic organisms, most often the staphylococcus albus, develop into papules and pustules. Thus the typical picture of acne vulgaris presents a mixture of comedones, papules, and pustules, upon an oily surface.

There are some who declare the acne bacillus to be the exciting cause and ascribe a secondary rôle to such predisposing factors as age, digestive disorders, pelvic disease, focal infections, and endocrine influences. It is needless to debate the question as to whether or not the acne bacillus is the cause of acne. Two facts will probably be conceded: the organism has never fulfilled Koch's postulates, and treatment with acne vaccine alone has not been a therapeutic success. The predisposing factors which have been enumerated, while possibly of occasional importance in the juvenile form, are of much more importance in the adult and cachectic forms.

The treatment which one adopts naturally reflects the physician's views of the disease. There are today many and diverse notions complicating the subject of acne. Those who vaguely connect food with acne are legion, but of such, some blame fish and others fowl. The dicta of past generations die hard. One of the old masters asserted that a cure was hopeless unless tobacco was avoided.

It is the purpose of this paper to outline a very simple conception of acne together with a correspondingly simple plan of treatment based upon it.

First of all, adolescence and the newly awakened activities of the sebaceous glands are to be considered. Soon the ducts cannot, or do not, adequately carry off the new production. The formation of comedones, followed by the secondary infection of some, results.

The treatment of the comedones and the consecutive lesions is important, and the thoroughness with which the comedones are expressed and the pustules incised and drained, will be reflected in the improvement which follows. When one considers, however, that the entire picture depends upon an increase in the size and in the functional activity of the sebaceous glands, the therapeutic indication stands out in bold relief. For in the roentgen ray we have an agent which positively and precisely reduces both the size and the activity of these glands. From the standpoint of treatment it is unimportant whether the increase in sebaceous activity results from endocrine, bacterial, or some other influence.

Two points require emphasis. First, while the x-ray gives the most positive therapeutic results, it is practically the only remedy that holds harmful potentialities. Second, no matter how effective, the x-ray can be advantageously augmented by other measures.

TREATMENT

General—At the first visit an effort is made to discover whatever general physical defects exist in the patient. In girls of the acne age a certain degree of constipation or anemia is sometimes encountered. Iron, arsenic, laxatives and general hygienic directions are given to meet these indications. If the patient takes an excess of sweets,

their use should be curtailed because an oversupply of blood sugar predisposes to pustule formation. Sweets in moderation are not interdicted. In the adult form of acne it is more important to forbid highly seasoned and stimulating articles of food and drink which cause reflex flushing, but in the juvenile patients it seldom seems necessary to make these restrictions.

Local—It is from the local treatment that we must expect our best results. The usual picture is the well-known oily skin sprinkled with comedones, papules, and pustules. Close inspection shows a considerable degree of hyperkeratosis about many of the lesions and many visibly distended sebaceous ducts which contain only potential comedones. The paramount problem at this time is the establishment of normal drainage. To this end the removal of as much of the surface detritus as is possible is effected by the use of strongly alkaline soaps and the application of active keratolytics. For the soap nothing surpasses a good laundry soap, though some may favor the use of green soap or its tincture. In conjunction with this my personal preference is for the use of cold water because it improves the tone of the skin; and I interpret the word "tone" to mean an increase in the power of the muscle fibers which are appended to the pilosebaceous apparatus and which furnish part of the propulsive force for the distribution of the sebaceous secretion. Very frequently we find women complaining of "large pores." In practically every instance we find that they have been inordinate users of hot water, their idea being that it is more effective in the removal of oil than cold water. While this is true it has the defect of lessening the muscular tone as well as causing expansion of the follicular openings. It will be found more satisfactory in practice to depend upon alkaline soap for the solvent action, even with cold water, particularly as the cold promotes both muscular tone and contraction of the pores. At times the use of warm water is necessary to remove external applications, such as salves and pastes, and here its use is followed by the application of cold water.

At this point it may be mentioned that, although the usual picture is one of a generalized oily surface, there are occasionally noted cases in which the oily background is not pronounced. In such instances the inference is fairly obvious that the trouble is limited to scattered ducts and that the indication for intensive effort with oil solvents and x-ray treatment is not so definite.

The patient having been duly instructed as to the important part played by thorough cleansing and friction with soap, the initial treatment consists usually of incision of pustules. This is most easily accomplished by means of a special acne lance of some description. My own preference is an oculist's instrument, the iridectomy knife. Because of its narrowness and delicate point it makes the incision of pustules nearly painless, and the sole disadvantage that it may penetrate more deeply than desired is overcome when one becomes accustomed to its use. Following the in-

cision of the pustules some of the more pronounced comedones are extracted. As a rule not much is attempted in this direction until a subsequent visit. The reason is that the next indication to meet is the removal of as much epithelial detritus as is possible, and this is usually accomplished by the use of some keratolytic. Ordinarily a 10 to 15 per cent resorcin paste is the choice. If this has been applied nightly for one week or more it will be found that the modified peeling which has taken place has also made possible the more easy removal of the comedones. At the second visit patients generally show some improvement and at this time the blackheads are attacked. For this purpose any form of comedone extractor may be used. None seems perfect, but the ordinary double-ended, slightly curved variety, is perhaps as satisfactory as any.

If the keratolytic action of the resorcin is now judged to be sufficient a mild sulphur lotion is substituted; if not, the resorcin is continued. Some patients seem to do best with rather long-continued, but intermittent use of resorcin paste.

Unquestionably by these means we may accomplish quite a satisfactory improvement in the appearance of our patient, but no matter how striking this may be, we are confronted with the fact that so far we have ameliorated the effects without having done much to remove the fundamental cause, which is an excessive activity of the sebaceous glands. It is here that the indication for x-ray therapy is apparent.

The advantage of x-ray treatment in acne lies in its selective action upon the sebaceous glands, reducing their size and functional activity and thus doing away with the condition which makes comedones possible. If there is no excessive secretion or faulty distribution of the sebaceous secretion there are no comedones; if there are no comedones there is no acne.

After a few fractional doses with the x-ray a definite diminution in the oiliness is apparent. In many cases the improvement is striking. It is worthy of repetition that this roentgen-ray treatment should not be undertaken by any except those who are trained in the use of the x-ray and who are competent in the interpretation of cutaneous reactions. The danger is not only that of an acute radiodermatitis from a single over-exposure, but in the results which may appear from the cumulative effect of smaller doses given over an extended period. Mackee has cautioned against the concurrent use of x-ray and strong local chemical agents. There is doubtless ample justification for stressing care in this respect, but I may say that I have prescribed almost as a routine the intermittent application of resorcin paste of from 10 to 15 per cent strength while x-ray treatment was in progress, with never an unpleasant result.

Practically the only reasons for calling an early halt in roentgen therapy are the occasional occurrence of a certain degree of pigmentation and the discovery that the sought for diminution of oiliness is at hand. Pigmentation is only a transient cosmetic matter, but it is sometimes of such im-

port to the patient as to make continuance of the treatment inadvisable. As for the latter it is important to discontinue the exposures short of the degree of dryness desired, because of the cumulative effect of the treatment.

The average patient treated by the x-ray shows marked improvement in four weeks' time. Ordinarily fractional doses, 1/4 to 1/6 unit, are employed weekly for from four to six weeks and then continued at biweekly intervals until eight to twelve treatments have been given.

Many patients show practical cure within this limit. In those where the response has not been perfect a rest interval of two or three months is given, during which time the treatment with local applications is continued. One must expect occasional exacerbations and relapses, but the rule is orderly progress toward recovery.

In the matter of topical remedies, I have found two most satisfactory: resorcin paste for its shell-ing action, and compound lotio alba for its specific and astringent effect.

There remains to be mentioned, local treatment with the ultra-violet ray. So far as I have been able to observe the good resulting from this treatment is practically limited to the improved drainage which follows exfoliation. Inasmuch as a small jar of resorcin paste will accomplish this, it hardly seems justifiable to cause the patient the discomfort, loss of time and expense which this light treatment entails.

SUMMARY

To recapitulate:

1. General treatment:

- (a) Obvious physical defects are to be corrected.
- (b) The average acne diet is frequently unnecessary and often grotesque. I have never seen a case cured by dietetic treatment alone.
- (c) The use of staphylococcus vaccine may cause diminished pustule formation, but as a rule the results are not to be compared with those which follow local surgical measures. I have never seen even improvement from acne vaccine alone.

2. Local treatment:

- (a) Soap and water alone, surgical treatment alone, keratolytics alone, will cause improvement in acne. Combined they will give relatively satisfactory results in most cases.
- (b) The x-ray is practically a specific, but it should only be employed by one who is trained in roentgenology and who is experienced in the observation of skin conditions.

350 Post Street.

DISCUSSION

E. D. LOVEJOY, M. D. (520 West Seventh Street, Los Angeles)—Doctor Chipman has summed up in a concise manner our present knowledge of acne vulgaris and its treatment.

This is one of the group of diseases of which our conception of etiology is far from being complete, and

having no definite point of attack for treating the condition we fall back on the selective atrophying action of the x-ray with its possible "harmful potentialities."

The chief underlying factor of the acne picture is an hypertrophy and hypersecretion of the pilosebaceous glands occurring at the time of puberty, a period when gland growth and secretion are most pronounced. We can fairly well rule out the results produced on the plugged duct of the sebaceous gland by the acne bacillus and the staphylococcus, as the former can be demonstrated in the sound ducts on the lateral aspects of any greasy nose, and although present in abundance, fail to produce an acne condition; and the staphylococcus is found only in those lesions where an abscess formation has occurred in the mass of detritus with which the enlarged duct is blocked, many of the lesions remaining in a comedone stage and progressing no further. Control of this pustular or abscess type of lesion was the curative rôle played by the vaccine therapy, no effect being produced on the comedone.

Diet, or rather faulty diet, with lack of balance in starch and sugar, can and does exaggerate an attack, but while its correction is of assistance in the treatment of the disease, we see many patients suffering from an excessive ingestion of carbohydrates without skin infections, and hyperglycemia, although fairly constant, does not occur in all cases.

Thyroid dysfunction has been found associated as a frequent feature of puberty, but, although mentioned by several authors on acne, no study has been made of its causative rôle, but the possibility of a glandular dysfunction as an underlying etiology sounds at least possible at the present time.

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GEORGE H. BECKER, M.D. (240 Stockton Street, San Francisco)—Doctor Chipman's contribution should be received with keen appreciation by the general profession. In this advanced age, it is indeed a pleasure to have an author propose a "simple view and a simple treatment" of any problem.

The acne problem, although belonging entirely to the field of the dermatologist is perhaps more often presented to the general physician for solution. This is specially true of the less aggravated cases.

In view of our continued ignorance of the etiology, although we have endeavored to class it as infectious, metabolic or endocrine, the writer has advisedly refrained from any elaborate constitutional therapy. To be sure, in this as in other diseases, any pathological conditions found must be corrected according to the principles of general medicine.

I have always felt that we must focus our attention upon the local treatment. Remembering that the local condition is one of hypersecretion of the pilosebaceous glands and a resultant plugging of the ducts, with subsequent bacterial infection, our initial aim should be for drainage. Doctor Chipman has ably enumerated the methods used to bring this about. I am glad to see him place soap and water in a position of importance along with the keratolytics. I have always used alkaline soaps and hot water, invariably followed by cold water. The pustules must be treated surgically. Persistency in thus relieving the condition often brings satisfactory results.

For the more aggravated cases the cause must be treated. It is in these cases that our latest ally, the x-ray, is of the greatest help in diminishing the glandular activity.

Doctor Chipman has given us a very practical paper.

✽

HOWARD MORROW, M.D. (384 Post Street, San Francisco)—Doctor Chipman has given us a sane regimen for the treatment of acne based on his many years of experience. In general it is about the same procedure that we follow. After correcting outspoken indiscretions in diet or mode of living, we have our patients use a bichloride of mercury and resorcin lotion well rubbed over the areas twice daily and give them fractional x-ray therapy every two weeks for six treat-

ments. At the time of each visit we empty all pustules and express as many comedones as possible. If the comedones are thoroughly removed it is of great value, but if only the upper half of the comedone is removed and the surrounding skin is traumatized in the process a pustule is sure to result.

The care of the scalp in patients with acne is of importance. If there is considerable scurf or dandruff and it is not controlled the acne is almost certain to recur.

✽

AUTHOR (closing)—One point may be emphasized in closing this discussion: the distinction between the juvenile and the adult types of acne. In the latter the seborrheic status is of relatively little consequence, while in the former its importance is paramount. I believe the failure to differentiate these types is responsible for the wide divergence of views concerning treatment. It will add to the clarity of the subject if this distinction can be uniformly made.

METALLIC TINKLES IN PNEUMOTHORAX*

By AUDLEY O. SANDERS, M.D.

Livermore

DISCUSSION by Chesley Bush, M.D., *Livermore*; Philip King Brown, M.D., *San Francisco*; Charles C. Browning, M.D., *Los Angeles*.

TEXTBOOKS on physical diagnosis have made comparatively few changes in their sections on pneumothorax during the past twenty-five years, notwithstanding the advent of a new phase of the condition, that of induced or closed pneumothorax as distinct from accidental, open pneumothorax which comprised the cases on which the earlier observations were made.

With the many thousands of cases of induced pneumothorax and the long-continued, careful observations made in the course of pneumothorax treatment in recent years, it would appear that the old problems of physical signs and their interpretation should have long since been clarified.

As an example of a common sign with varied interpretations, the metallic tinkle is here presented. All textbooks list this as one of the important signs in pneumothorax. But when the important question as to what intrathoracic conditions are necessary for the production of this sign there appears to have been little added since the very lucid discussions of Laennec and his contemporaries of a hundred years ago.

DIAGNOSTIC SIGNIFICANCE AND CAUSES OF METALLIC TINKLES

Textbooks¹ continue to give the metallic tinkle as diagnostic of Laennec's triple lesion: (1) pneumothorax or pulmonary cavity with (2) open bronchus and (3) fluid or effusion.² This was questioned by Williams, an English contemporary of Laennec. In 1842 Williams wrote, "The conditions are not, as Laennec supposed, essential to metallic tinkle production. . . . We have heard metallic tinkling accompany both voice and cough in a case of pneumothorax without liquid effusion or perforation of the pleura."³

In the light of the observations of recent years on cases under pneumothorax treatment, with

* Read before the Alameda County Medical Society, September 16, 1925.

neither open bronchi nor demonstrable fluid, can the interpretation of the metallic tinkle, as diagnostic of the triple lesion, continue to be accepted?

Laennec explained that the metallic tinkle could be caused by air from an open bronchus vibrating over fluid in a pneumothorax or pulmonary cavity. He also spoke of the "falling drop" as a possible means of tinkle production in such a cavity.⁴ However, there is still dispute in textbooks as to the mechanism of the tinkle production.⁵ Is the tinkle produced by (a) the vibration of air over fluid in a pneumothorax or pulmonary cavity, (b) the "falling drop," (c) the breaking of an air bubble through mucus of an open bronchus into an air cavity, (d) an air bubble from an open bronchus ascending through an effusion, or (e) by the amphoric echoing of râles produced in diseased tissue near a pneumothorax or pulmonary cavity?⁶

May it not well be, as Doctor Gee has stated,⁷ that each of these explanations is correct in particular, individual cases? May it not be that a sound of a certain quality and pitch, no matter how produced, will assume a metallic, tinkling character, if released into a pneumothorax or pulmonary cavity with proper conditions of walls and of air pressure? Some of the older authors⁸ even warned of the possibility of mistaking the metallic tinkles over a gas-distended stomach for those of a pneumothorax.

AN ANALYSIS OF FORTY-FOUR CASES OF PNEUMOTHORAX

Below are presented observations of the writer on forty-four cases of pneumothorax. Most of these patients were observed by the writer over periods varying from two to eighteen months, frequent, careful physical examinations being made during these periods. X-ray examinations were also made on practically every patient at approximately the same date as the physical examination.

TABLE I—*Ten Cases of Accidental Pneumothorax (With Possibility of Open Bronchi)*

In five cases with demonstrated fluid, metallic tinkles were heard.

In three cases with demonstrated fluid, no metallic tinkles were heard.

In one case with no demonstrable fluid, metallic tinkles were heard.

In one case with no demonstrable fluid, no metallic tinkles were heard.

TABLE II—*Thirty-Four Cases of Induced Pneumothorax (With Closed Pleural Cavities)*

In eight cases with demonstrated fluid, metallic tinkles were heard.

In four cases with demonstrated fluid, no metallic tinkles were heard.

In sixteen cases with no demonstrable fluid, metallic tinkles were heard.

In eight cases with no demonstrable fluid, no metallic tinkles were heard.

It will be noted that two cases were reported twice. In one of these cases tinkles were heard though no fluid could be demonstrated by x-ray or physical examination. Some months later fluid

developed, but tinkles were no longer heard. In the other case tinkles were heard for several months, though no fluid could be demonstrated by x-ray or physical examination. With the later development of fluid the tinkles persisted.

In the cases recorded above, metallic tinkles were noted with gradations from very fine and faint to those distinctly bell-like. Findings were practically never exactly the same at two consecutive examinations.

In one case of accidental, complete pneumothorax of the left side with no fluid, the clear bell tones were exactly synchronous with the beats of the patient's heart. There could be no question that the sounds were originated by the heart movement.

In another case an accidental, partial pneumothorax with fluid, medium râles over the second interspace changed to distinct, clear, metallic tinkles as the patient changed position, the bell of the stethoscope being held in place as the patient's position was changed. As the patient slowly returned to his first position the metallic quality was lost. This procedure was repeated at intervals during the examination. On other examinations of this patient, no tinkles were noted.

In several cases of induced, partial pneumothorax, further collapse being prevented by firm, pleural adhesions over extensive lung lesions at the apex, typical, moist râles were heard over the adherent, diseased lung, and, as the stethoscope bell was moved off the margin of the adherent lung, the râles could still be heard, more faintly but with an added amphoric or metallic quality. As the stethoscope bell was advanced gradually away from the adherent lung and over the pneumothorax cavity, these sounds became unmistakable, faint, metallic tinkles.

CONCLUSIONS

1. It would appear from the findings noted in the forty-four cases of pneumothorax here reported that the metallic tinkle in pneumothorax is not confined to those cases with open bronchus and effusion. Metallic tinkles were heard in cases of induced pneumothorax with neither fluid nor open bronchus.

2. It would also appear that metallic tinkles may be produced by sounds arising from distinctly varied sources.

U. S. Veterans' Hospital No. 102.

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DISCUSSION

CHESLEY BUSH, M.D. (Arroyo Sanatorium, Livermore)—It is high time that someone should begin to question the interpretation of certain physical findings in the chest. Textbooks have a habit of copying each other until certain statements are accepted as traditions without further investigation. Metallic tinkle is a case in point. At best we can but speculate as to the cause of this distinctive physical finding; but since the advent of artificial pneumothorax and the roentgen ray we should have considerable more basis for speculation than did Laennec one hundred years ago.

Doctor Sanders' careful work is to be commended. He has shown that Laennec's so-called triple lesion—(1) air, (2) open bronchus, (3) fluid—need not exist in all three components to produce metallic tinkle. He has shown that fluid need not be present. This is in direct contradiction to textbook explanation of Norris and Landis, who show that air must bubble through fluid to produce the tinkle in bottles. We have set up this apparatus and found that in bottles such is actually the case, but we do not believe that the bottle experiment parallels conditions in the chest.

On the very day that Doctor Sanders' paper was sent to me for comment Doctor Brier, of this sanatorium, demonstrated to me beautiful metallic tinkles in a case of artificial pneumothorax without any evidence of fluid, either by physical examination or by fluoroscope. There was reason, however, to believe that an open bronchus existed on account of the excess air in the chest. It has been my experience in the past with artificial pneumothorax that metallic tinkles were never heard except in those cases where an open bronchus existed; and of course the majority of those cases also had fluid. I have never heard them in an uncomplicated artificial pneumothorax without fluid.

We must conclude that demonstrable fluid is not necessary for the production of metallic tinkles, but hold an open mind as to the exact method or methods of their production.

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PHILIP KING BROWN, M.D. (909 Hyde Street, San Francisco)—Doctor Sanders has made an important criticism and contribution, for it is quite true that physical examination of a chest once invaded by air introduced into the pleural cavity for therapeutic purposes alters conditions in a way that requires new valuation of old symptoms. Pleural signs closely resembling fine dry râles, increased by cough and the varying signs over an artificial pneumothorax, are in need of explanation. Doctor Sanders has made quite

clear under what varying conditions tinkle can occur, and his observations on the production of the tinkle synchronous with heart beat are especially important.

It has seemed to me that one determining factor is tension, and in cases of marked rigidity of the mediastinum tinkle was more apt to occur. As Doctor Bush points out, the bottle experiment is not the same thing, but it does illustrate transmission of tinkling sound under conditions of rigidity of the wall. The change in sound with change in position may have an explanation in the same change in tension.

✱

CHARLES C. BROWNING, M.D. (711 Merritt Building, Los Angeles)—I have not collected in tabulated form data of the cases which have come under my observation in which I have found metallic tinkles in pneumothorax. The cases which he reports of accidental pneumothorax and the number of cases in which metallic tinkles were heard with and without fluid, and also the report in the second table of induced pneumothorax, are exceedingly interesting. I have met cases reported in each of these classes.

In reply to his inquiry if it "may not well be, as Doctor Gee has stated, that each of these explanations is correct in particular, individual cases?" In my judgment, yes. I would also make the same answer to the question immediately following, "May it not be that a sound of a certain quality and pitch, no matter how produced, will assume a metallic, tinkling character if released into a pneumothorax or pulmonary cavity with proper conditions of walls and of air pressure?"

I also concur in his conclusions.

Accepting the statement (physical diagnosis of diseases of the chest, Pratt and Bushnell) that, "All normal respiratory sound is caused by the air streaming through the rima glottidis. . . . The sound (vesicular) that is heard over the lungs is fundamentally the laryngeal sound amplified by the thorax as a resonator. . . . Bronchial sound likewise is produced in the larynx. It is amplified in the bronchi, which act as resonators for sounds of higher pitch than that of vesicular sounds, I would add."

Changed conditions may modify these sounds in transit, and these changes may be transmitted with corresponding modifications to the respective resonators, the thorax, and bronchi. One of the more common changes is in the amount and character of moisture in the bronchial tubes. The more viscid fluids give a greater variety of sounds, which are spoken of as amphoric, musical, metallic, etc. The peculiar character of these sounds is transmitted to the chest wall amplified by the resonators.

During the existence of pneumothorax many of the bronchi are not receiving the ordinary amount of air. However, if one has become patent and allowed air to escape into the pleural cavity it remains a good conductor of sound and the air passing through this will conduct sound which may have been occasioned at any point within the bronchial tube and not only at the point where the air enters the pleural cavity. The thorax containing air under the condition of pneumothorax acts as a resonator for sounds thus received. This will occur through moisture in the bronchial tubes, of a proper quantity and consistency. It is conceivable that a cavity which has been compressed may lie sufficiently near the pleura as to transmit sounds, and that air entering such cavity or passing through a bronchus containing proper fluid may produce sounds which may be amplified by the resonators.

I have made demonstrations by the use of a soft rubber bottle and a system of tubes controlled with an air pump which I believe justify me in the conclusion, that sounds originating at a distance from the site of the pneumothorax may produce tinkle sounds which may be transmitted to this site, on the principle of a speaking tube. I have produced tinkle sounds at eight inches distance which seemed as distinct as

those produced at two inches. I have not thought this work was of sufficient importance to justify me in reporting it. It has, however, given me a conception of the variable conditions which may result in the production of metallic tinkle in relation to pneumothorax.



DOCTOR SANDERS (closing)—I think the gentlemen who have so kindly discussed this paper agree with me in the belief that the world has had but one Laennec; that, in all probability, the world will never have another such genius in physical diagnosis; and, were he living today, that he would be of the first to question any outworn formula.

TONSILLECTOMY WITH NITROUS OXID-OXYGEN ANESTHESIA *

By MERTON PRICE, M. D.

San Francisco

DURING the past five years tonsillectomy under nitrous oxid-oxygen has become an accomplished fact. Apparently unacquainted with the work of McKesson and J. H. Evans, most of the laity and a goodly percentage of the medical profession still view this procedure as a surgical innovation.

Owing to the frequent demands for the removal of children's tonsils under some method other than ether narcosis, we have attempted at the Children's Hospital, San Francisco, to develop a nitrous oxid-oxygen technique. We have made this operation, not a matter of routine, but of selection. In most cases there has been definite pathology calling for the removal of the tonsils and the exclusion of ether anesthesia. These pathological conditions have been nephritis, septicemia, mastoiditis, acidosis, bronchitis (acute and chronic), osseous tuberculosis, tuberculous adenitis, and pulmonary tuberculosis.

ADVANTAGES

There are certain advantages obtainable under nitrous oxid-oxygen anesthetic. The induction period is greatly reduced (two to four minutes). Under ether, fifteen to twenty minutes is not unusual. The spasm of coughing, retching and vomiting, attendant upon the spraying of ether vapor upon the pharynx, is noticeably absent. The surgeon is not hampered by the excessive inhalation of ether. He is not required to regulate his own respirations nor to wear an unusual shield. Many oral surgeons find it necessary to wear grotesque gas masks to avoid a chronic ether bronchitis.

While the laryngeal reflexes are relatively difficult to abolish under nitrous oxid-oxygen, this is not an obstacle but an aid to the surgeon who insists upon a light anesthesia.

The pharyngeal and laryngeal reflexes may be entirely suppressed under nitrous oxid-oxygen. Such deep anesthesia is not only unnecessary, but most undesirable. There is a certain element of safety in a partially active laryngeal reflex. Under ether anesthesia there is a decided irritation of the pharyngeal and laryngeal mucosa, with its resultant excess

secretions and interruption of the anesthesia. These disagreeable features are entirely eliminated under nitrous oxid-oxygen anesthesia. There is little or no mucus present, and the operator is working in a clear, dry field. By lowering the table and using suction the anesthetist can prevent the blood and serum from entering the esophagus and larynx. A few moments after the completion of the operation the patient is awake, in possession of all his faculties, and able to cooperate. This usually prevents swallowing of blood and thereby eliminates nausea and vomiting.

The usual parents' question is, "How long will it be before the child is awake and able to talk?" With nitrous oxid-oxygen narcosis, the parents welcome to the room a conscious child, and their hours of suspense are ended. This is a joy and triumph for the anesthetist and surgeon.

DISADVANTAGES

The disadvantages are entirely upon the shoulders of the anesthetists. The physician must be cognizant of the depth of the patient's narcosis at all times. Pupillary reactions, phonation, muscular contractions, cyanosis, pulse, blood pressure, and respiratory rhythm must be given their true values and immediately interpreted. Cyanosis does not always mean a deep analgesia, nor does a cry mean the reverse. A moaning child may be profoundly unconscious. On account of the rapid action and quick elimination of the gas there is occasionally some difficulty in holding the patient at the same level of narcosis. This apparent objection can be overcome by a mutual cooperation of the anesthetist and operator.

It is unfair to ask graduate nurses and inexperienced physician anesthetists to attempt this work. It is a specialty, and calls for profound knowledge, alertness and judgment obtained only through experience.

We feel that the age of the patient has no influence on the anesthetic. The youngest patient was 6 months, and the oldest 52 years of age.

The amount of bleeding is the same as under ether. There is an occasional darkening of the blood which at first may be disquieting to the operator. This cyanosis is usually transient. Any bleeding points may be easily clamped and ligated. Suturing and dissecting of scar tissue are readily performed.

There seems to be little or no change of the blood pressure. McKesson states that nitrous oxid-oxygen may be administered in any operation which is comparatively free of other shock-producing factors for two hours without a material change in either systolic or diastolic pressure. This has been our experience. At the end of the operation the blood pressure returns to normal or slightly below normal. A properly administered nitrous oxid-oxygen anesthesia produces little or no change in the blood pressure.

The preoperative routine consists of a general physical examination of the patient and a laboratory examination of the urine and blood, with the bleeding and coagulation time. No food or liquids are given the morning of the operation. Divided doses of morphin sulphate and atropin are given

* Read before the Anesthesiology Section, California Medical Association, at the Fifty-Sixth Annual Session, Los Angeles, April 25-28, 1927.

according to the age of the patient. In patients with hyperactive pharyngeal reflexes a 4 per cent cocaine solution is sprayed upon the lateral and posterior pharynx. The patient is placed in the recumbent position with the head slightly lowered. A positive pressure machine with nasal and mouth attachments is essential for a smooth nitrous oxid-oxygen anesthetic. The face mask is applied gradually. The nasal cap and mouth piece are not adjusted until the patient is completely anesthetized. The room is not darkened, and the necessary illumination is furnished by a bifocal head-light. The use of a daylight room is a material aid to the anesthetist and in no way handicaps the surgeon.

The tonsils are removed by the usual sharp dissection and snare method. Time for the removal of the tonsils has varied from thirty-six seconds to four minutes. The average time has been about two minutes. It is at this period that the deepest anesthesia is necessary, and following the removal of the tonsils the patient is retained under a lighter analgesia for a period corresponding to the coagulation and bleeding time. If there is bleeding at the end of this period the bleeding points are clamped and ligated. Any blood in the throat or nasopharynx is removed by suction. Gauze sponges or wipes of any description are not applied to the throat. The patient is fully conscious before leaving the operating room.

The postoperative care is reduced to a minimum owing to the absence of nausea and vomiting. The child frequently sits up in bed and plays with his toys, while the adult resumes an interest in life.

Tonsillectomy with nitrous oxid-oxygen anesthesia is practical and not accompanied by excessive dangers. It has its definite indication in certain pathological conditions.

The operative technique required is not difficult, but depends upon the close cooperation of a competent anesthetist and the surgeon.

490 Post Street.

Prize Babies—The New York *Herald-Tribune* of August 31 contained unique editorial comments on the Asbury Park parade, and said:

"We have never known a baby champion in adult life, at least consciously. Nevertheless it is not hard to believe that if he or she is aware from hearsay of the glory that crowned the infant head, he or she feels no temptation to boast of it. Quite the contrary. Everyone has had friends who liked to relate that when they were born the doctor told their parents they weren't worth raising, or that as children they were so sickly their lives were despaired of. This is a natural form of vanity, since the comparison implied is very flattering.

"These folk say in effect: 'Look at me now and see what I have become despite such a poor beginning.' But who wants to say: 'I was the champion baby of the Jersey coast in the year uppty-um and now look at me'? We all shy from anticlimaxes.

"Today, we learn, twenty-seven winners of baby parades throughout the country will compete for the title of champion baby of America at Asbury Park. At this distance and in advance we commiserate the winner and congratulate the mother."—*New York State J. Med.*

THE LURE OF MEDICAL HISTORY*

VESALIUS

By JEAN OLIVER, M. D.

AMONG the first books of all time Vesalius' "De Humanani Corporis Fabrica" holds high rank. And this is true from whatever point one wishes to examine its merit. As an example of the art of the printer it has served as an inspiration to craftsmen since its appearance in 1543 down to the modern revival of the art by Morris in England, and doubtless also to our local typographers, Nash and Grabhorn.

Its illustrations are well worthy of the period of graphic renaissance which had occurred in Italy shortly before Vesalius prepared his dissections as newly appointed professor of anatomy at Padua. Pallaiuolo, Leonardo, Titian and Michael Angelo had shown their skill at the delineation of the dissected human body, and Vesalius had but to control the efforts of the artist with his scientific skill to produce anatomical plates whose combination of artistic and scientific accuracy has never been equaled. The modern anatomist may find inaccuracies indeed, but he might learn the value of the living delineation of the dead in these figures of skeletons and muscular dissections which assume the attitudes of the common movements of daily life and so show the relation of articular and muscular structure to function. Vesalius' dissections live—the modern type is as dead (and as unattractive) as a cadaver.

The Lane Library possesses all of the more important editions of Vesalius' work: the first and second editions, the English, German, and Dutch Epitomes, which reduced the text to the convenience of the medical students of their time, but preserved the illustrations. The later copper plate issue of a Dutch edition is also there to compare with the original woodcuts. An examination of the illustrations alone will give one a considerable grasp of the state of anatomical science at that time, of the advances it had but recently made and perhaps a truer insight into the character of Vesalius than can be gained by the reading of many books about him.

Let us turn to the title page of the first edition of 1543 which represents Vesalius holding an "Anatomy" and which is filled with a wealth of allegorical and literal detail.

Anatomy had come at last to her own—no longer is there a furtive and hurried dissection at night by candlelight in some mortuary cellar as Leonardo has depicted, but in a magnificent hall which rivals the apse of St. Peter's. High above the colonnade are the arms of Vesalius, three weasels which represent the town in Belgium from which his family derived its name, for throughout his life Vesalius never forgot that he was an aristocrat in origin and by education, a very proper person to be professor at the newly established chair of anatomy at Padua, and later court physician to His Catholic Majesty the King of Spain.

Below the title is the Greek tragic mask, indi-

* This article is the first of a series on the history of medicine. See editorial in October 1, 1927, California and Western Medicine.



B A S I L E A E.

cating that Vesalius would have us consider the structure of the body as essential to the drama of life and death, while in the body of the apse, before an amphitheater crowded with spectators is Vesalius dissecting and explaining the abdominal viscera of a female subject. The index finger of one hand is raised as if to emphasize some point and in the other is a small baton with which he may point as he describes. Quite different is this pointer from that of the former professors of anatomy and which the articulated skeleton now holds that stands at the head of the table. And here is one of the great advances in his science that Vesalius made, for while the older professors sat at a high desk apart from the cadaver reading from Galen a description of the part which was clumsily dissected by a humble barber and demonstrated at a comfortable distance with a long rod, Vesalius was proud of his title of "professor, ostensor et incisor" and makes many a scornful allusion to physicians too delicate to handle anatomical material. On the table before him are anatomical instruments which two men at the foot of the table are busily sharpening.

The audience is noteworthy, as it shows the general interest of the times in the new science of anatomy. The seats and the pit are crowded to overflowing; spectators stand in the colonnade and lean from the gallery above the apse. It will be noticed that medical students, or at least young faces, comprise only a small part of this gathering—the majority are mature bearded men, many in the sandals and flowing robes which the graphic art of that time had chosen as the symbol of the Graeco-Roman philosopher. This is obviously a suggestion on the part of Vesalius that the followers of Aristotle and Galen, with whom he had many a bitter controversy, might attend with profit an actual dissection. Another allusion to

the Galenical doctrine is found in the monkey—a favorite subject of dissection by the older anatomists—and the dog, which is seen in the lower corner of the plate. The dog apparently does not appreciate the need of gravity at such an occasion, for he is barking, and the philosopher before him looks back with annoyance and points to Vesalius as a caution, while another spectator leans from above the reproving hand toward the two men who hold him.

Behind Vesalius the representatives of the Church are seen, two monks, and in the seats above and behind him is a nun, who seems to be the subject of some comment of those about her. Another female is seen in the colonnade at the right.

Scattered among the audience are men dressed as merchants of the time, practical individuals, interested in science nevertheless, and whose wealth was an asset to the carrying on of scientific work then as now. One of these on the right is viewing the scene through a lens which he holds to his eye.

In the whole audience there are but two books seen, an innovation indeed in the study of anatomy. One of these is closed, while in the other the reader evidently compares the written doctrine of the day with the innovations which Vesalius is demonstrating.

Behind the pillar on the left a nude man is seen, for Vesalius used such to point out the landmarks and contours of the organs on the living as he dissected them on the dead. On the right a fashionably dressed youth in slashed doublet gazes in fascination at the spectacle.

Such was anatomy in the time of Vesalius, a subject of general interest among the cultured, and these were the great contributions that he made to its advance—that the professor should learn and teach from the actual dissection and that such a rôle was worthy of the respect, and attention, and support of society as a whole.

The portrait of Vesalius shows a young bearded man, richly dressed and of proud bearing. There is, however, a larger portrait on the next page of the first edition showing him in 1542, twenty-eight years of age, which we have not reproduced. From it one can see the character of the man—the remarkably shaped head, the keen eyes, and the belligerently tilted nose.

Throughout the book are scattered the anatomical plates and diagrams. We cannot attempt a description of these dissections which seem to live and move before our eyes, but they will be a revelation to those who know only the modern type of anatomical drawing. For a proper realization of their contemporary significance in the medical sciences, ask the librarian to show you a previous anatomy, Mundino's for example, and see what a tremendous revelation they must have been to the world of Vesalius' day. For anatomy, too, had come a renaissance.

A final word about the figured capitals which head the chapters and books. They are comparatively small and might be overlooked, but showing as they do the life of the student of anatomy, they

give a vivid picture of that science in Vesalius' time. Amoretti are seen performing the various tasks which confront the anatomist. In one they are disinterring a stout cadaver; another shows the removal from the gallows of a female subject; a stomach is being inflated; a coffin broken open; a skull macerated in a boiling cauldron, and so on through all activities of the anatomist. But why continue with descriptions which might be endless—the book itself is accessible to all.

CLINICAL NOTES, CASE REPORTS
AND NEW INSTRUMENTS

REMISSION IN SPRUE FOLLOWING
HIGH LIVER DIET*

CASE REPORT

By ARTHUR L. BLOOMFIELD, M. D.
AND
HARRY A. WYCKOFF, M. D.
San Francisco

THE similarity of many of the clinical features of sprue and pernicious anemia is well known, and the question has been raised as to whether there is not some actual relationship between the two disorders.¹ Since the cause in both cases is at present unclear, the point cannot be settled. However, in view of the brilliant results which

have followed the use of a diet containing large amounts of liver in pernicious anemia² it was decided to try this form of therapy in a case of sprue. A prompt and striking remission was obtained.

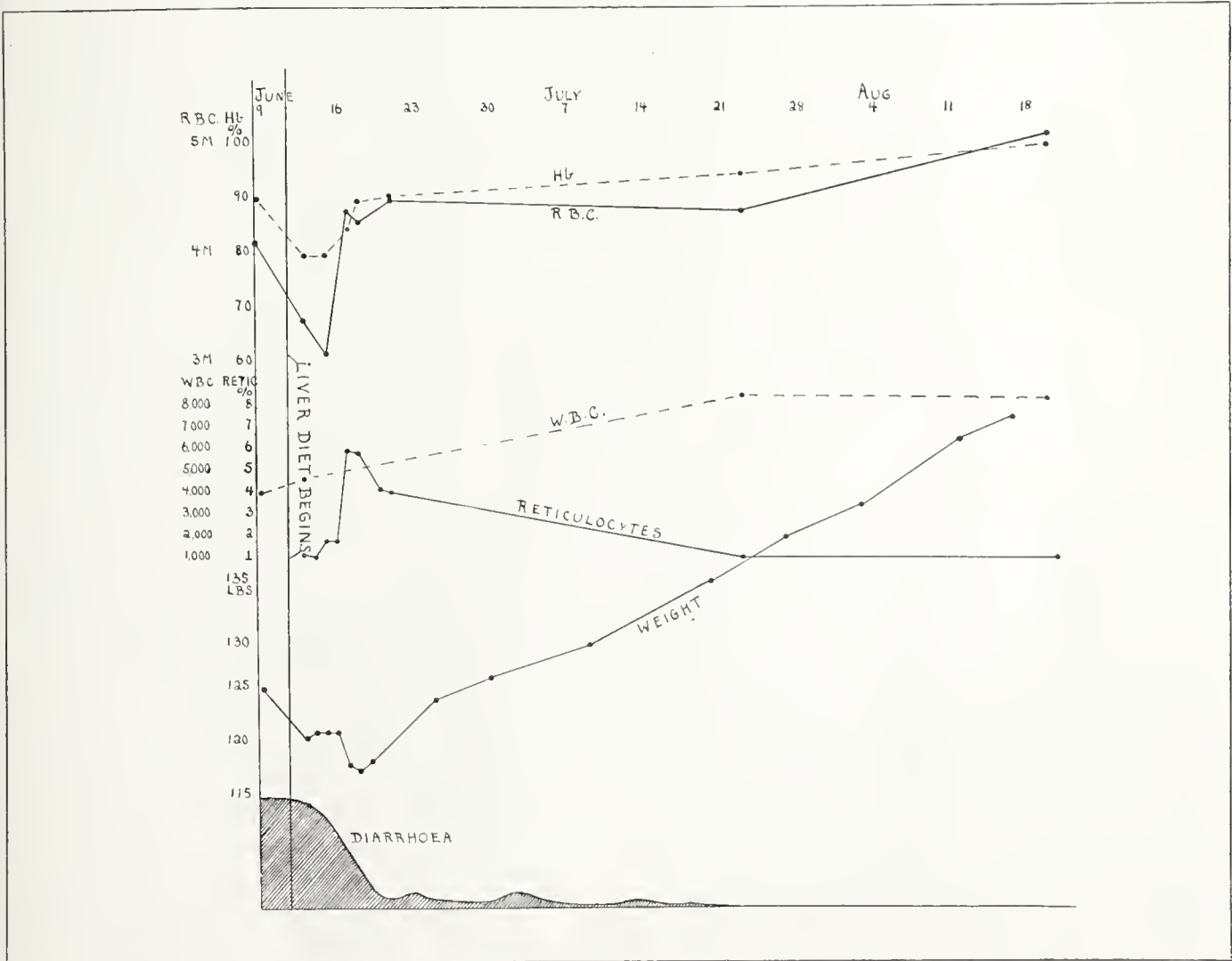
F. C. K., age 43, male (No. 51327), entered Stanford Hospital on June 9, 1927, complaining of weakness, diarrhea and sore mouth.

The past history was not remarkable; his general health had always been extremely good and there had never been any digestive disorder. In 1924 the patient went to the Philippines to "teach school" and returned to this country sixteen months ago. Two months later he began to have diarrhea. The bowels moved early in the morning, usually two or three or more times. The stools were extremely large, loose, pale and frothy. The patient was especially impressed by the bulk of the excreta; he saw no blood or mucus and there was no pain. Coincidentally with onset of the diarrhea the mouth became sore. There was a raw, burning sensation with successive crops of small "blisters" at the edge of the tongue and on the lips and gums. The appetite failed and he became progressively weaker. At times he was barely able to stand up. His average weight was about 135 pounds; at present he weighs 125.

He has had no systematic treatment but has used various astringents for the diarrhea and for the most part has been on a restricted milk-cereal-vegetable diet. There has been no tendency to improvement during the fourteen months of his illness.

On examination he was found to be thin and sallow. There was slight pallor without any suggestion of the yellowish tints of pernicious anemia. There was no atrophy of the lingual papillae, but along the mar-

* From the Medical Department of the School of Medicine, Stanford University.



Graphic summary of course of case

gins of the tongue were many small, flat ulcerations. There was one lesion on the lower lip. The heart and lungs were clear. The abdomen was slightly distended, not tender. Liver and spleen were not felt. The extremities were normal and no neurological disturbances were discovered.

The temperature tended to be slightly subnormal, the pulse on entry was 60, and the blood pressure was 90/60. The urine was clear and the Wassermann was negative. Gastric analysis (after Ewald Meal) showed free HCl, 2, total acid 15.

Numerous stools were examined. They were all pale, frothy, loose and very bulky. There was no mucus, blood or pus. No ova or parasites were found. There was an excess of fat in the form of crystals and droplets. Some small round bodies which might be *Monilia* were seen in smears, and cultures on Sabaraud's medium yielded yeasts. No *Monilia* were found in scrapings from the tongue.

The blood on entry showed: red blood cells (erythrocytes), 4,100,000; hemoglobin, 90 per cent; color index, 1.1 (Sahli)—1.37 (Dare); white blood cells, 4150; polymorphonuclears, 59 per cent; lymphocytes, 35 per cent; eosinophiles 4 per cent; basophiles, 1 per cent; transitionals, 1 per cent.

There was slight aniso- and poikilocytosis, and many large cells.

The diagnosis of sprue was made on the basis of (1) residence in the tropics, (2) the character of the diarrhea, and (3) the buccal lesions. Against pernicious anemia were the absence of papillary atrophy, splenic enlargement and neurological changes, the presence of free HCl, even though low, and the slight degree of the anemia.

After three days of observation and rest in bed, during which his condition was unchanged, he was placed on the high liver diet of Minot and Murphy.² No drugs or other measures were used. There was prompt improvement. In four days the ulcers on the tongue were entirely healed. The stools immediately became brown and less bulky, within a week they were pasty, and on discharge from the hospital on June 20 there were only one or two semiformal movements per day. He felt very much better and the appetite had improved.

During the summer the patient took courses at Stanford University and reported at frequent intervals for observation. Aside from the high liver diet and dilute hydrochloric acid with meals no treatment was prescribed.

On September 1 he felt perfectly well and weighed 150 pounds, a gain of 25 pounds in two months. The physical examination revealed nothing abnormal, the blood pressure was 120/85 and there was one (occasionally two) brown, formed or soft movements daily. He regarded himself as well.

The course is summarized in Chart I.

COMMENT

The results of administration of the high liver diet which has proved so effective in inducing remission in pernicious anemia were studied in a case of sprue. Prompt improvement occurred featured by (1) rapid cessation of diarrhea, (2) remarkable gain in weight and improvement in general strength and well-being, (3) increase in reticulocytes with rise of blood count to normal and establishment of a normal blood picture except for the persistence of some macro- and poikilocytosis.

Remissions in sprue occur "spontaneously" or following various methods of therapy, but the promptness and great degree of improvement after an uninterrupted downhill course for four-

teen months suggest that the liver diet was the effective agent in the present instance.

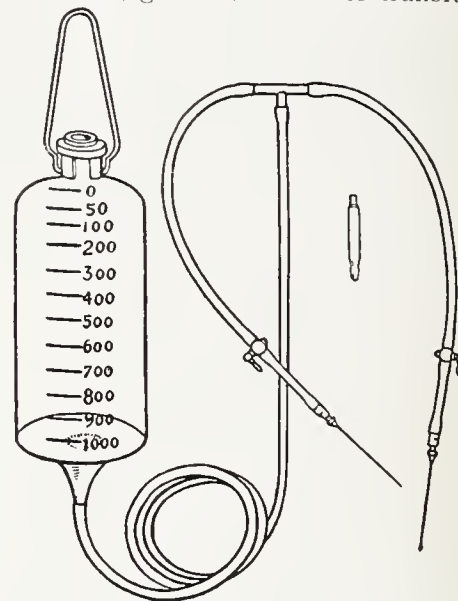
Stanford University Medical School.

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HYPODERMOCYLSIS

The set herewith presented is simple, efficient, and overcomes all the disadvantages of those hitherto employed. It is adapted to both subcutaneous and intravenous use; in fact, it may be used for intravenous salvarsan, glucose, or citrate transfusions.



For intravenous work the B-D Fordyce needles (assorted sizes) have been found ideal.

The apparatus consists of a graduated Kelly infusion jar, with pointed end, 1000 cc., the proper lengths of rubber tubing to make connection, two stopcocks, two Luer Lok adapters, two Yale needles 19 gauge $2\frac{1}{2}$ inches, one glass T tube, and one glass observation tube.

Drug Store Shows Up Quackery—The average drug store carries so-called patent medicines chiefly because a certain proportion of the public is misguided enough to demand them. As there is a much smaller profit on such goods than on most of the other merchandise carried, it would be to the druggists' advantage to abandon this general line were it not for incidental sales of a general character.

Few have the courage to do this, but a drug store in Spokane goes one step farther according to the *Health Messenger* of Seattle, Washington, and actually advertises in its store windows:

"These Remedies Are An Insult to Public Intelligence."

"When Ill Consult Your Physician; Then Let Us Fill Your Prescription For You With Drugs of Value."

This idea commends itself as a really new form of health education.—*Health News*, New York State Department of Health.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

THE ELECTROCARDIOGRAPH—ITS PRACTICAL VALUE

Henry H. Lissner, Los Angeles—The more one sees of the bedside application of the electrocardiograph the more one is impressed with its clinical value. At the outset it is necessary to have a definite and clear understanding of what the electrocardiograph actually tells.

Its great worth is found in the recognition of heart muscle insufficiency and the arrhythmias. It gives very little information with regard to valvular diseases of the heart. In the interpretation of the tracing it is also extremely necessary not to read out of it more than is actually in it. Its place in heart diagnosis is dependent on the correlation of the clinical aspect of heart disease with the heart tracing.

Compared with other laboratory methods, and with the personal equation of the cardiologist under control, it is much more valuable and gives more exact data than any other diagnostic laboratory method. Its technique is definitely standardized and, unlike the x-ray, its interpretation is not subject to psychological quirks. If the interpreter follows accurately the known data of cardiography, two separate observers must have the same opinion of a given tracing in the greater percentage of all tracings. However, electrocardiography and its clinical application is still in its infancy, and there remain at present certain types of heart conditions in which there is an honest difference of opinion. These differences of opinion are not especially referable to the arrhythmias, except of ventricular origin. It has been noticed in the extra systole, where the beat does not come through to the radial pulse, that the electrocardiograph shows an excursion on the tracing much larger in comparison with the normal ventricular beat, and at the same time the palpating hand feels a greater precordial impulse. The exact significance of this fact is still in question.

A knowledge of electrocardiography is desirable for every practicing physician and specialist. Every doctor thinks he knows something about x-ray interpretation, but at medical meetings the description of a heart tracing is of interest to few physicians except the cardiologists. Few physicians ask for a heart study with the same alacrity or frequency as they do for an x-ray study of their patient.

Universities seem still to teach that the diagnosis of heart diseases necessitates the presence

or absence of a murmur, and the modern intern nearly always will think of heart diagnosis in these terms. The "Leistungsfähigkeit," or the actual measure of the function of the heart muscle is usually a secondary consideration; and yet from actual bedside practice its determination is the only definite prognostic adjunct which is of value to both clinician and patient. The knowledge of the elements of an electrocardiograph places the individual at the end of the auscultating stethoscope in a more analytical and alert frame of mind. It helps him separate the elements of the cardiac cycle and evaluate abnormal sounds with greater accuracy.

There should be a more intimate association between the cardiologist and the general practitioner. The cardiologists should be given a few salient points with regard to the clinical findings and symptoms of the patient in order that certain types of heart-tracing curves and deviations from the normal might be studied and statistics compiled from them. The general practitioners should understand the types of tracings that they may have a clearer understanding of the technical reports on their patients.

Many times the electrocardiograph will indicate a disturbance of heart function where auscultation fails to elicit anything other than weak muscle tones or indefinite murmurs. Examples of these are disturbances of conduction, right and left bundle branch block, arborization block, toxic myocarditis, postflu, and many other secondary heart muscle deficiencies.

An electrocardiographic tracing is of special value to the surgeon. Many deaths which follow operations might be prevented if the surgeon had a better knowledge of the heart function before the operation. There are many conditions in which elective surgery is done in which, because of this lack of study, a fatal result takes place. In fatalities from operations for thyroid diseases, gall-bladder disorders, hysterectomies for fibroids, and prostatectomies the cause is often ascribed to emboli. Many of such deaths are due to simple heart insufficiency, which an electrocardiograph would have detected in case the stethoscope had previously failed. It is just as important for the surgeon to know about his patient from an electrocardiographic standpoint as to have information from an x-ray, cystoscope or other laboratory machine. It should be considered just as negligent for a surgeon to operate on a patient without having made a careful study of the heart

as it would be for him to set a fracture without the x-ray as a guide.

* * *

J. Edward Harbinson, Woodland—Knowledge of the field of usefulness and practical value of the electrocardiograph is gradually becoming more disseminated. The average physician still regards this instrument of precision as an expensive toy of the cardiologist and knows very little about its practical application in the elucidation of the cardiac arrhythmias; the importance of the curves in estimating the degree and type of myocardial damage; and the value of the graphic finding in prognosis and treatment.

As with any laboratory procedure the electrocardiogram should never be the sole means of estimating the patient's cardiac status. The history, physical findings, and the simple clinical tests for estimating cardiac function should always be the fundamental factors in diagnosis.

A great majority of the cardiac irregularities may be identified without the aid of graphic tracings. The commonest of these, sinus arrhythmia, although easily recognized and of no clinical importance, is often erroneously interpreted as a serious disorder. There may be some difficulty in differentiating between extra systoles and some forms of fibrillation without much arrhythmia, or conversely, when extra systoles are very frequent.

It is generally known that extra systoles usually disappear after exercise; however, it is not so well known that they may be increased by exercise if the heart muscle is severely damaged. An auricular flutter with irregular ventricular rhythm may be mistaken for a fibrillation, or fibrillation with partial or complete block may simulate various other types of irregularities. A heart block manifests itself in a variety of forms. Many similar variations in the other types of cardiac irregularity are confusing. An exact diagnosis is often the key to treatment and is of invaluable aid in prognosis.

In the absence of clinical symptoms we depend upon alteration in the character of the heart sounds, degree of cardiac enlargement, valve lesions, hypertension, arterial changes and inferences drawn from other findings to estimate myocardial damage. Diagnosis of myocardial insufficiency based solely on these factors is often unreliable. It is in this field that the electrocardiograph is most useful. Signs such as an increased P-R interval or heart block, bundle branch block and other types of ventricular block, abnormal inversion of the T deflection, give us direct evidence that the myocardium is not normal.

Considering these findings in conjunction with our history and physical examination we are able to give the patient a much more satisfactory and reliable opinion regarding how much work his heart is able to do and whether the condition is transient or permanent.

Tracings in cases of acute infectious diseases like diphtheria, influenza, and pneumonia often give us a clearer understanding of the toxic effects

of the disease on the myocardium than the evidence we are able to obtain clinically.

The electrocardiogram is a valuable guide in the administration of digitalis, quinidin, and other drugs used in cardiac therapy. By following the changes in the P-R interval and in the form of the T wave, which digitalis produces, the administration of this drug may be controlled intelligently. At times digitalis may produce serious cardiac poisoning without nausea or vomiting. Quinidin and quinin derivatives should never be given unless we have the best knowledge obtainable on the condition of the cardiac musculature. These drugs may give rise to complicated disturbance in rhythm and serious disturbance in conduction if given to patients with marked myocardial changes.

With an exact diagnosis of the type of cardiac irregularity and a more accurate knowledge of the condition of the heart muscle than may be acquired through clinical examination alone, the physician, through the aid of the string galvanometer, is better prepared to answer the questions of the patient in regard to prognosis.

The electrocardiogram is a permanent record which often tells a more accurate story than the description of the clinical findings on the day the tracings were taken. Periodic tracings give an accurate résumé of the patient's progress to supplement the descriptive record.

The frequent use of the electrocardiograph to confirm diagnosis of cardiac arrhythmias and to estimate myocardial insufficiency helps the physician to reach and maintain a high degree of proficiency.

It is hoped in the future that greater use will be made of this instrument by the general practitioner. The patient and physician alike will profit greatly by the additional practical information given by the tracings in cases of suspected or true myocardial disease.

* * *

John C. Ruddock, Los Angeles—The portable electrocardiograph, recently developed, has suddenly awakened the medical fraternity to its value as a diagnostic aid. Unfortunately, because there have been only a few electrocardiographs available in any given locality, and because the instruments are delicate and require trained technicians, their use has been restricted in the past to only a few cardiologists. This explains why the average physician regards electrocardiograms as too complicated and mysterious to understand, whereas they are quite simple. This is unfortunate, for the patient thus fails to get the benefit and value of an examination that would help more accurately to diagnose and prognose his condition.

The electrocardiograph, like any other laboratory instrument, should never be used *per se*, but as an adjunct to a careful history and physical examination. With its aid we are able to demon-

strate with a graphic tracing, serious myocardial changes, which cannot be proved by any other means; and we are also able to classify accurately the various cardiac irregularities and arrhythmias.

The electrocardiogram enables one to analyze 96 to 98 per cent of the arrhythmias, which is perhaps 6 to 8 per cent more than can be worked out by the tracings taken by the polygraph. It gives detailed information as to the origin and passage of the contraction wave over the heart. It helps to elucidate many points observed clinically and on which the pathologist cannot offer any assistance. The various arrhythmias frequently do not display the typical picture and are then not easily diagnosed by the non-instrumental methods of examination, and when two or more of these functional conditions are present in combination the problem is often too obscure for ordinary bedside diagnosis. The detection of impaired conduction in the ventricle and the accurate differentiation of the ventricular type of paroxysmal tachycardia from that of auricular origin, both of which are of distinct importance in prognosis, are dependent upon the use of the electrocardiograph. In regard to which valve, if any, is affected, the electrocardiogram offers evidence of but indirect value and not infrequently is of no assistance.

Electrocardiography may be said to have two distinct limitations: (1) it usually fails to demonstrate pulsus alternans, and (2) there are a few electrocardiograms which are difficult to interpret. With experience the latter tend to become rarer. The use of the electrocardiograph forms, of course, but one of the methods of cardiac examination, and to be most helpful must be employed with proper cardiac examination. It should not be allowed to lessen one's efforts to make accurate diagnoses without this aid, but unmasked the failures, by its use, should react like similar post-mortem reports—to guide and stimulate effort toward greater efficiency in diagnosis.

The ability of the heart to perform work depends entirely on the condition of the heart muscle. It is not difficult to detect a dilated heart, auricular fibrillation, or any of the common valvular lesions with their accompanying signs, but it is difficult at times to detect, clinically, sclerosed coronary arteries, branch bundle lesions and infarcts. A coronary sclerosis or thrombosis gives characteristic changes in an electrocardiogram and may be the one deciding factor concerning the advisability of operating upon elective cases.

Surgeons should require more careful heart examination on all elective operative cases over 40 years of age, and this examination should include an electrocardiographic tracing. A hurried auscultation by an anesthetist just before operation is of no value, as it gives no clue to the status of the myocardium, which is the controlling factor. The surgeon is given a false security; whereas, were the myocardial condition fully reported, the operation could be so arranged as to minimize any cardiac embarrassment or be abandoned entirely. The surgeon who has electrocardiograms done routinely on all of his elective

operative cases over 40 years of age very materially reduces his postoperative cardiac mortality.

The differentiation between flutter, paroxysmal tachycardia and fibrillation is sometimes very difficult to determine clinically, but is fairly simple with a tracing. The successful treatment in these cases depends entirely upon the correct diagnosis.

The standardization of electrocardiograms eradicates the personal element so often found in x-ray interpretations, and leaves a permanent record for comparison with later tracings. The type of machine used makes no difference, as the tension of the string is always standardized before the tracing is made so that one millivolt displaces it 1 centimeter.

Too much emphasis cannot be given to a careful history, physical examination and the usual laboratory procedures in any heart examination. An examination, however, is not complete without an electrocardiogram, as it may be the deciding factor in explaining such clinical findings as muffled heart beats, gallop rhythm, low blood pressure, cardiac pain, shortness of breath, epigastric distress, tachycardia, extra beats, bradycardia, effort syndrome and arrhythmia. With the aid of the electrocardiogram as an adjunct to our examination, we can give a more accurate opinion and prognosis and regulate more intelligently the life of our patient in conformity to the condition of his heart muscle.

The practical value of this machine then depends upon its more general use by the average physician and surgeon, both as a diagnostic and prognostic aid and as a measure of myocardial competence in preoperative examinations. Its value as a means of differential diagnosis of the various arrhythmias and irregularities has long been known.

In the words of a master, Thomas Lewis: "Electrocardiograms have placed the entire question of irregular or disordered mechanism of the human heart upon a rational basis, so giving the worker the confidence of knowledge; they have influenced prognosis and have rendered it more exact; they have potentially abolished the promiscuous administration of cardiac poisons, and have clearly shown the lines which therapy should follow. These records used as clinical observations have stimulated and directed a host of laboratory researches, anatomical, physiological, pathological, and pharmacological, of a valuable nature."

* * *

William J. Kerr, San Francisco—The increasing popularity of the electrocardiograph indicates that this instrument or something similar has come to stay in the realm of diagnostic procedures. One cannot do internal medicine today in a thorough manner without having the service of an electrocardiograph at his disposal. I agree with those who have already discussed the subject, that the electrocardiogram is merely an aid to diagnosis just as the x-ray film, the Wassermann reaction or the blood count may be, and should be used in its proper relationship to the conditions found on examination of the patient.

I think it may be said safely that if the clinician would constantly take the electrocardiographic findings back to the bedside and correlate them with the findings derived by the use of his own special senses it would soon be possible for him to dispense with the use of this instrument on most occasions. In other words, we should seek, in the use of the electrocardiograph, to develop our special senses so that ultimately we may dispense almost entirely with the use of this aid. This skill, however, cannot be acquired by the use of books alone, but must depend particularly on the application of the method to the bedside.

The previous commentators have covered all the main points in regard to the use and value of the electrocardiographic method. I wish only to emphasize the following facts: First, an electrocardiogram may verify the impression we have as to the nature of some irregularity in rhythm. Second, it gives us evidence of preponderance of one side of the heart over the other, which preponderance may be due to valvular lesions, high pulse pressure, openings in the septum of the heart, and other structural disturbances. Third, it gives evidences of altered conduction time which may be based upon structural or circulatory changes or upon the use of drugs; and last, it demonstrates changes in the ventricles which are usually upon a circulatory or conduction system basis which may not be expressed clearly in any other way than by the use of this instrument. As one's skill in cardiovascular diagnosis improves, one finds fewer and fewer instances where the electrocardiogram will add much to the impression already gained. It is in a particular group of conditions with myocardial damage and altered conduction in the ventricles themselves that the electrocardiogram may show distinct abnormalities. Even in these cases, however, the patient may show, on examination, a very faint or blurred first sound which is much fainter than the second heart sound at or near the apex. Very often in these cases there is a history of coronary occlusion and the electrocardiogram may show evidence of bundle branch or arborization block.

One very important point which should be always kept in mind is that many patients who have failure of the heart muscle with generalized edema show very little evidence by the electrocardiogram that there is any myocardial disturbance. Therefore the clinician who has such a patient should not be misled by the negative electrocardiographic findings. This merely emphasizes the point already made that the electrocardiograph curve should only be considered in conjunction with the clinical findings.

Although in recent years a great deal of attention has been paid to the T waves, many of the fundamental facts relating to the nature of the T wave and its variations in disease are still unknown. However, the shape and direction of the T wave is of great significance in prognosis as well as in therapeutics.

There are a good many uses for the electrocardiograms for purposes of identification, and for determining the presence or absence of pericardial adhesions or effusions by certain well

established technical methods. In displacements of the heart to the right, it is possible to show that, in a given instance, we are dealing with congenital displacement due to a complete transposition of all the organs or to displacement due to adhesions in the chest or to tumor masses.

An Address to the Wayne County Medical Society, by Honorable Fred W. Green, Governor of Michigan—*I believe all too little time is spent in our public schools apprising the coming generations of the heroism and supreme self-sacrifice and unselfish devotion of you men of science—both in the past and in the present.*

A Lindbergh can fly across the sea and his name is on every tongue, and his most worthy feat will probably never be forgotten. He doubtless did great good, and his heroic feat may turn out to have led civilization another step forward. But how many of us, old or young among the laity, know the story of the conquest of yellow fever or smallpox, or diphtheria and those other dread maladies over whom you will be able to stand victor in a short time. Gentlemen, we say all too easily, "Peace hath her victories no less than war," but the heroes of mankind are still too easily recruited from the ranks of Mars. I would have every child know the story of Jenner, Pasteur, Lister, Gorgas, and others, as they know about Washington, Napoleon, Lincoln, or Wellington. This, I understand, has been started by your Joint Committee on Public Instruction, and I commend it.

Certainly it is a legitimate and worthy work, this your society can carry on with our education.

My second plea as a layman is to implore you to maintain among your medical students those high ideals of service that have characterized your profession in the past and won it the high position it now holds in our hearts.

Two dangers stand tempting the modern medical student. One is the lure of high fees. Perhaps we laymen have encouraged you in that. The other is the passion for the science of medicine in the abstract.

Whenever a medical student regularly gets so interested in the progress of a case as it develops as to lose sight of the fact that it is a human being in distress, then his place is in the laboratory and not at the bedside. No doubt we need men to delve in the laboratory and not at the bedside. No doubt we need men to delve in the laboratory with test tube and microscope; but even there I do not doubt but that the man who gets the results, who works tirelessly, is the one who sees human beings tossing on beds of pain and pants with eagerness to aid them.

For my last suggestion I fear I am treading on sacred ground. Forgive me if I misstep, for I have only the desire to help you and the public to get closer together. It is difficult for the average layman to understand the difference between ethical and unethical conduct. Of course I am not referring to the extremes where common notions of decency and law would advise a man. I am thinking of that borderline that perhaps troubles you at times—when you wonder what is proper publicity and what forbidden.

As a business man I cannot see why the tremendous weapon of newspaper publicity should be snubbed by you and left as a terrible weapon in the hands of quacks and charlatans. I am not pleading now that you devise some way to use publicity for your own sake. You do not need it. But I ask it for the sake of the public. Perhaps you say that the public should discriminate. But surely your experience in homes where you see the lack of ability to discriminate in such simple matters as proper eating, will tell you that too much cannot be expected of us laymen in the matter of discriminating intelligence.

So I believe that one of the finest things you members of the Wayne County Medical Society could do would be to make an earnest effort to discover ways of educating the public in how to choose their doctor.

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Editors GEORGE H. KRESS
EMMA W. POPE
Associate Editor for Nevada . . . HORACE J. BROWN
Associate Editor for Utah J. U. GIESY

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EDITORIALS

TWENTY-FIVE YEARS AGO

Twenty-five years ago the California Medical Association, then known as the Medical Society of the State of California, upon the initiative of one of its younger members, the late Philip Mills Jones, established its official publication, the *California State Journal of Medicine*.

In March, 1924, upon the suggestion of its then editor, the late William Everett Musgrave, the name of the official California publication, after it became the accredited representative of the Nevada and Utah State Medical Associations, was changed to CALIFORNIA AND WESTERN MEDICINE.

* * *

The California Medical Association may well be proud of the vigorous manner in which its journal sprang into existence and for the valiant and efficient way in which it battled for a widespread organization of the medical profession and the elevation of the standards of medical education, licensure and practice.

Its founder, Philip Mills Jones—for if this journal had a founder, he more than any other one man was its sponsor—was no mollycoddle type of man. He was a clear thinker, a clever editor, a fighter. He was human, very human, both in his weaknesses and in his strength. He made enemies, but he likewise had strong and devoted friends. He was proud of the profession of medicine; loyal to its principles and to its members, and his beliefs, as printed in the columns of this publica-

tion, played a very considerable part in the up-building of our State Medical Society at a crucial time in its existence.

He is no longer with us, for with a host of other colleagues who were once part of us in the brunt of the fray, both in civil practice and in medical society organization work, he has gone on into the Great World Beyond. We are grateful that these men lived and played their parts so well, and that it was our good fortune to know them and to profit through association with them. May their souls rest in peace.

* * *

Just as they came and went, so in good time each of the rest of us who have come, in equal measure, will go. And in the rush of daily work and responsibilities only a few will pause, to linger and consider, in contemplation of such small deeds of good and of service as it may have been our fortune to have rendered.

Yet in an organization such as ours, where we are all bound together by ideals of service in a profession that labors for the conservation of human health, the prolongation of human life and the alleviation of human suffering and disease, we are through such service brought together in many respects, as are the members of a family who are bound together by blood and the inherited tendencies of their forbears.

A blood family group whose members ignore the traditions of their blood, their forbears and race, rarely amounts to much. Honest, respectful pride of lineage, in order to live up to the best of one's forbears and blood, is desired by all who would make of themselves human units whose existence warrants a reason for being.

So also, in an organization such as this great California Medical Association—one of the large state medical societies of the nation—it may be worth our while to pause a bit from time to time and think for the moment of some of the aims and achievements of those who labored in our organization in the years gone by.

The early history of the medical profession of California is still to be written, and the official journal in which a monthly survey of the work of our society is presented on printed page goes back only a quarter of a century. Not very long, as judged by the history of man, but what wonderful, massive years in the forward movement of scientific medicine!

* * *

In November, 1902, just twenty-five years ago this month, Volume 1, No. 1, of this journal was printed and mailed. The memory of our older members will carry back to that time in recollection of its advent among them. Yet how few, how very few among them have bound volumes thereof. As a matter of fact, Volume 1, No. 1, has even disappeared from the file in our central office, and the editors would be glad to acknowledge the gift from any member who could again

re-establish for the Association the complete sequence of the file of its official publication.

* * *

These remarks suggested themselves as a prelude to the introduction of a new column which is inaugurated in the Miscellany department of this issue, and which will appear under the caption: "Twenty-Five Years Ago."

We commend this column to our members: both old and new. It will harm none of us to know the stand colleagues who are still with us took on this, that and the other subject. And if it remind some of us who had the pleasure and honor of knowing some of the stalwarts who are no longer with us, of what was the attitude of those colleagues, now dead, on the issues of their day, that also will be good and heart satisfying.

* * *

For member colleagues who have not been long in California, and for recent graduates from both in and out our state, the column will be worthy of perusal as showing that twenty-five years ago the California Medical Association was functioning in much the same way as at present, with equally high ideals and record of good work; and that its members of that time, in measure equal to that of today, were performing their duties in civil and hospital practice, painstakingly, alertly, and by the standards and knowledge of their day, quite as scientifically and as efficiently as we do today who still carry on, whether we be members of the this California profession a few or many years.

The Twenty-Five Years Ago Today column will not be an interpretation by the editors, of how we today view what was done then, but will be a matter-of-fact presentation by actual quotation of what our colleagues at that time felt and did. And because of such literal quotation it will be worth just that much more to all those who believe that a knowledge of the past makes for a better present and future.

THE BUBONIC PLAGUE—DOES HISTORY REPEAT ITSELF?

It is just a quarter of a century since America had its first visitation from bubonic plague. The discovery of its presence in San Francisco led to an acrimonious exchange of opinions in which state and city executives took issue with the medical societies and federal public health authorities; the two former contending that the epidemic then prevalent was not, and the two latter insisting that it was, true bubonic plague. By the march of the events which followed, the federal government and the medical societies were sustained.

Today we all know that at that time bubonic plague, that dreaded scourge of the Orient, made its appearance in California; and also that during the same period the modern-day method of attacking the disease at its dangerous source to man—the rat—was worked out.

Reference to the San Francisco outbreak is made in one or two of the paragraphs which are

to be found in the Twenty-Five Years Ago column in the Miscellany department of this issue of CALIFORNIA AND WESTERN MEDICINE; and in succeeding issues further excerpts thereon will be printed in that column.

To give in this issue the word-picture of these various comments a more composite setting, and because adequate prevention measures are still being fought for, the Los Angeles outbreak of 1924 is further discussed in this issue. Articles in the Current Comment and Medical History columns of the Miscellany Department of this issue of CALIFORNIA AND WESTERN MEDICINE will shed some interesting sidelights on what recently took place in Los Angeles, and what transpired in London in the seventeenth century.

* * *

In the intervening twenty-five years which have elapsed since the San Francisco outbreak, the cities of Oakland, California; Galveston, Texas; New Orleans, Louisiana; and Tampa, Florida, have gone through outbreaks of this much feared disease. Each of those epidemics took its toll of death among human beings, and each of those outbreaks meant not only a heavy expenditure of money in an immediate attempt to overcome the disease, but also a very large indirect loss to the commercial and other material interests of those cities, until other states in the Union and the outside world felt they could again safely carry on business relations with residents of the infected communities.

In every instance the federal authorities through the United States Public Health Service promptly went to the aid of state, county, and city health authorities to get prompt control of the epidemics, so that the other seaports in our own and foreign countries would not place an embargo on the ports of the cities just named.

Each of the above-named cities followed up its sad experience by the enactment of local ordinances designed to prevent a recurrence of such outbreaks.

* * *

Public health authorities in our own and European countries are agreed that, after plague once establishes itself in the rodent family (especially among rats, and in California, squirrels), then in order to keep outbreaks of the disease from occurring among human beings it is necessary to keep the rodent, and especially the rat population, down to a minimum. How is this end to be most efficiently attained?

The highest authorities in the United States Public Health and Federal Biological departments are agreed that rat-trapping and rat-poisoning are only palliative measures; and that rat-proofing requirements for buildings, which prevent rats from gaining access to easy shelter and breeding and food supply places, must form the basis of all logical preventive measures against the bubonic plague.

* * *

Not in any desire to give undue publicity to the bubonic plague outbreak in San Francisco

twenty-five years ago, or to the Los Angeles outbreak three years ago, but to permit the medical profession to go on record as in favor of rat-proofing building requirements, these comments are here made.

Perhaps in a near issue it will be possible to state that the proposed Los Angeles rat-proofing ordinance has become a law. If so, the public health interests of California will have secured an additional safeguard.

There is no physician, no matter what his specialty or calling may be, who has not a personal obligation in this. Knowledge is power. Physicians, like other humans, must know just what they are talking about. Bubonic plague in California came to us twenty-five years ago. It has come several times since that time. We may rest assured it will come again. As a matter of fact it has never been fully eradicated from the rodent population. The medical profession has definite opinions concerning this disease and how it may be prevented. This journal is an official publication of the profession, and it fulfills some of its obligations to the citizens of the state by telling what those preventive measures are. That is why the matter is discussed from different angles in this issue.

CALIFORNIA UNDERGRADUATE MEDICAL SCHOOLS: ITEMS OF HISTORY; THEIR DEANS

California has three medical colleges rated as "Class A" by the Council on Medical Education and Hospitals of the American Medical Association. These are:

The Medical School of Stanford University, which carries on its preclinical work at Stanford, and its junior and senior courses in San Francisco;

The School of Medicine of the University of California, located at Berkeley and in San Francisco;

And the College of Medical Evangelists, which conducts its freshmen and sophomore years at Loma Linda, near Riverside, and its upper class work in Los Angeles.

* * *

The schools of the two noted universities of the North are the successors of pre-existing medical institutions in San Francisco:

Stanford University having taken over in 1908 the Cooper Medical College, which in turn had come into existence in 1882 through the union of the Medical College of the Pacific (established in 1872) and the medical department of the University of the Pacific (founded in 1858 by Dr. Elias Samuel Cooper);

And the University of California having taken over the Toland Hall College founded in 1862, the nominal affiliation with the University of California taking place in 1872, and the change into an active department of the state university being made in 1902.

* * *

In southern California, the first undergraduate medical school to come into existence was founded

in 1885 by the University of Southern California. Its sponsor and first dean was J. P. Widney, M. D., still living, who later became president of the University of Southern California. In July, 1909, this medical school, which had an affiliation with the University of Southern California similar to that of Toland Medical School with the University of California during the period 1872 to 1902, was absolved from its allegiance to the University of Southern California, and became a department of the University of California, continuing undergraduate medical teaching as such until 1914. In that year the department ceased its undergraduate work to give instruction only in clinical courses for graduates of medicine.

In 1903 another medical school, known as the College of Physicians and Surgeons, came into existence at Los Angeles, and in 1909 took the place of the former medical department of the University of Southern California, as just noted, and continued as such until the year 1920, when it suspended its work.

A third medical school came into existence in southern California in 1909 under the name of the College of Medical Evangelists, the institution being under the direct control of the Seventh Day Adventist denominational organization. Just as students in the North divide their time between Stanford and San Francisco, and Berkeley and San Francisco, so in the College of Medical Evangelists, which is the only undergraduate medical institution now existing in southern California, the students divide their time between Loma Linda, near Redlands, where the work of the first two years is carried on, and Los Angeles where provision for the junior and senior class work exists. In the news column of the Miscellany department of this issue is printed some further information concerning the College of Medical Evangelists, which in many ways is a somewhat unique institution and concerning which many members of the profession in California have only a rather limited knowledge.

* * *

The surveys which have been made of medical institutions in the United States by the Rockefeller, the Carnegie, the A. M. A. and other organizations, have practically all stressed the desirability that at least three high grade medical schools should be located on the Pacific slope. The three cities mentioned as sites for such institutions were San Francisco, Los Angeles, and Portland.

At this time California has three "Class A" medical schools, namely, Stanford, the University of California, and the College of Medical Evangelists.

A group of colleagues in southern California have been agitating for some time the organization of an additional undergraduate medical institution, to be attached as a department of one of the universities represented in that section. What the outcome of these efforts will be is difficult to foretell, especially in these days when so tremendous an endowment is necessary if a high standard school is to be properly launched, and when

so severe an apprenticeship must be gone through by new institutions before a "Class A" rating can be obtained from the governing bodies which supervise the medical institutions of the United States.

* * *

The medical schools of California now existing have all measured up to high standards both in performance in the work which they have carried on, and in their graduates.

William Ophüls is dean of the school of medicine of Stanford University. He is a colleague who is so well known from one end of the state to the other through his devotion to the advancement of scientific medicine, and has given of his work so often at the annual sessions of the California Medical Association that he needs no introduction to members of the C. M. A. He has the good fortune to have in back of him a colleague who preceded him as dean, and who now has the honor of being president of Stanford University, Ray Lyman Wilbur, who likewise is so well known to Californians and to members of the California Medical Association as to need no comment.

The medical school of the University of California has been working under an acting dean, L. S. Schmitt, for a number of years; but in the last month Robert Langley Porter, a San Francisco colleague, whose work as a pediatrician and as a teacher in the University of California medical school has made him very well known both at home and abroad, has been called to the deanship by the regents of the university. Doctor Porter has been spending the last three years in Europe in special study, and as he now comes back to take up his administrative and teaching duties, the good will of the medical profession of California is extended him in his new work.

In the Southland, where the College of Medical Evangelists exists, the president, Newton Evans, who is in charge of the department at Loma Linda, is quite well known. Equally prominent is the dean of the Los Angeles division, Percy T. Magan, who has not only accomplished remarkable results against tremendous odds, but who has also found time to respond to every call which organized medicine has made upon him.

* * *

California can be proud of these administrative officers who head their undergraduate medical institutions. The California Medical Association takes pride in the high "Class A" ratings which each of these medical schools has maintained, and is in hearty sympathy with the faculties of the respective institutions in their efforts to make the standard of medical education in California measure up to the best in America and abroad. In future issues, perhaps in the Medical History column, which it is designed to bring into existence in our journal, it may be possible to give some very interesting accounts of the past of some of the older colleges. The early days of these Cali-

fornia medical institutions, their faculties, students and graduates, are not only full of interesting historical fact, but also at times carry one almost into the realm of romance.

A new food-poisoning organism discovered by a microbiologist of the Bureau of Chemistry, United States Department of Agriculture, may possibly aid in explaining many poisoning cases that could not be attributed to organisms of the common food-poisoning group. Organisms of the latter group—known scientifically as the paratyphoid-enteritidis group—are the only ones hitherto recognized as a cause of intestinal disturbances. The new organism, although it has not been identified as any well-defined species, belongs to another group. In appearance it has much in common with the ordinary lactic types used in the preparation of "starters" for butter and cheese making.

The new organism was first believed to be a source of food poisoning when B. A. Linden of the Bureau of Chemistry found it in a sample of imported cheese held responsible for an outbreak at Biddeford, Maine, in 1925. Milk cultures of the organism were made and fed to cats in which violent intestinal disturbances were produced within a few hours. The same organism has since been isolated in two other outbreaks, in both of which cheese was the one article of food eaten by all persons affected. Organisms of the old group of food poisoners, so commonly reported to be the cause of food-poisoning outbreaks, were not found. In each of these outbreaks the streptococci, the group to which the newly found organism belongs, were recovered and fed in milk cultures to cats with results like the first trials.

So far no sickness has been produced in experimental tests except when milk was used as a culture medium. The organism will grow and multiply on meat and other media, however, and this may possibly leave many avenues open for contaminating human food.

Dr. Charles Thom, in charge of microbiological work for the Bureau of Chemistry, regards the discovery of this organism as the most outstanding achievement of the year in his field of investigation. He further suggests that while there is no general danger from this source of poisoning it does offer another forceful argument for the pasteurization of milk before using it in manufacturing dairy products. —*J. Iowa M. Soc.*

Conquest of Diphtheria—The readers of this journal are familiar with the notable work in the city of Auburn, New York, in the attempt to demonstrate the eradicability of diphtheria, and during the course of the work we have had papers by the health officer of that city read at our meetings and published in this journal.

March 8, 1927, marked the end of the third year during which period no death from diphtheria has occurred. In the city of Auburn during 1926 only seven cases of the disease were observed, as against eighteen for 1925. During the present year seven cases have developed, four of which were in one family. Three of them had been treated with toxin-antitoxin mixture, but they had not had time to develop full immunity, though the beneficial action of the vaccination was manifested by the mildness of the disease. Of the remaining three cases one was in a boy, and one was in a baby, neither of whom had been immunized, while the third case occurred in a child who had received a single dose of toxin-antitoxin three years previously.

We have noted with great pleasure the widespread publication of these results in the daily press. One such example as Auburn has given is worth many years of talking. We believe that Auburn has demonstrated that complete eradication of diphtheria is possible. The experience in that city will make it easier for other cities to adopt the eradication plan, and even to extend it to the full acceptance of the Seymour plan.—Editorial, *Am. J. Pub. Health*.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Gastrointestinal Disorders

"Colon Filling Stations"—In the *Journal of the American Medical Association*, page 1023, of the issue dated March 26, 1927, is found a letter to the editor, written by Anthony Bassler, M. D., of New York. It is published under the above title, and is both instructive and entertaining.

After an interesting explanation of the ebb and flow in the use of colon irrigations in Europe, Doctor Bassler calls attention to what took place in America. He quotes: "The profession and laity in our country, quite ignorant of all that Britain and Europe had gone through in this treatment, were fertile soil mentally for the recent 'great discovery' of this beneficial procedure. A nonmedical 'discoverer' of this time-worn method rose among us, and many of the profession as well as laity fell for it, dorsal, right, side, and some on their knees. . . . The number of filling stations has increased throughout New York City until today they are almost as numerous, and the signs on some of them are distinctly more conspicuous than gasoline stations."

Doctor Bassler then proceeds to set colon irrigation in its real and correct position, evaluating it in his own direct manner for exactly its real worth. He says: "Colon irrigation per se is practically a worthless procedure unless it is combined with other therapeutic measures. There are a few indications for colon irrigations for a short time, but in routine work there are far more occasions in which they are contraindicated, and still more in which they are useless. . . . On the other hand, colon irrigation is of value as a therapeutic adjunct at times, and combined with other measures it may be worth while."

In closing his remarks the doctor writes: "In 1926 forty-seven patients came to me who had been treated by colon irrigators who were not physicians, most of them proprietors of typical filling stations. . . . In the forty-seven cases referred to were two cases of carcinoma of the colon; five cases of pulmonary tuberculosis with ulceration in the ileocecal region; eight infected types of ulcerated colitis; two cases of pernicious anemia; six instances of cardiovascular renal disease; and one case of Paget's disease—in all, twenty-four instances of persons who had gone to these stations and were treated without diagnosis. Of the twenty-three remaining none had a condition which required colonic irrigation. At \$5 a washing, \$4165 was paid out for treatment which was not required."

Doctor Bassler's humorous sarcasm is a timely thing. We need, all of us, to understand the viciousness of the enema habit. In fact, it is second only to the cathartic habit. To continually go into the bowel and wash away normal secretions that need

to be there to keep the highly specialized tissue of the colon in condition is highly inimical to good health. In fact, it produces that which the physician would cure by his treatment. It is harmful to continually use the enema for moving the bowel; but it is still more so to go into an empty bowel and irrigate it so thoroughly with all kinds of solutions.

From data secured from patients, I have recently been making up a list of fluids used for enemata and colon lavage at the suggestion of friendly neighbors, "healers," and I am sorry to say, physicians. In a short time I have listed the following: milk, honey, molasses, glycothymoline, kerosene, buttermilk, acidophilus culture, lemon juice, orange juice, flaxseed, etc. Most every "filling station" has its pet theory of some wonderful fluid with which they can wash out the colon and have the evil symptoms disappear. This process is producing endless harm and an untold amount of colitis. The medical profession should not hesitate to call attention to this evil practice.

R. MANNING CLARKE,
Los Angeles.

Radiology

Failure in Therapy of Carcinoma—It is commonly asserted that failure in cancer therapy is due to the institution of radical treatment too late in the course of the disease. Theoretically, the earlier the lesion is discovered, and the more localized it is, the more successful should be the treatment, whether radiologic or surgical. Practically, this works out in the majority of the cases, but frequently an apparently innocent and localized lesion, the excision of which is a minor procedure, is the focus of extensive secondaries. In other words, massive metastatic areas found throughout the entire organism may come from a small local, almost unrecognized lesion.

This brings us to the crux of the problem; neither our clinical experience nor our diagnostic ability is able to visualize accurately the actively growing edge of any malignant growth. Handley's masterpiece on carcinoma of the breast shows us that this edge is sometimes quite distant from the original focus.

Surgical treatment is based on the wide excision of the tumor so as to include the "growing edge;" if this is accomplished a "cure" is the reward, if not, recurrence is the penalty. Radiological treatment is based on the thorough radiation of the primary lesion as well as the gland bearing areas that drain the lymph from the infected area. In both instances, however, the treatment is essentially local. Too often, the disease is outside the influence of our treatment so that instead of obtaining beneficial

results, dissolution takes place from unrecognized areas of disease.

How are we to overcome this? The present textbook teaching, the basis of treatment, says that operability is dependent upon a freely movable, localized growth with or without axillary glands; but, is this sufficient? No! for many a patient has been subjected to operative treatment on this basis, and in a few weeks she has returned either with a brassy cough and dyspnea or with what is called rheumatic pains in the hips. A belated x-ray examination reveals metastatic involvement of the lung and pelvic girdle, respectively. When the patient returns in two or three weeks, we may assume that the disease was not localized at the time of operation. Obviously, the patient was operable from one standpoint, but not from another.

To overcome such recurrences our standards must be revised. Operability must mean not only a localized tumor, freely movable, with or without axillary glands, but negative x-ray films of the chest, lumbar spine and pelvic girdle. Radical excision here would have an excellent chance of success, but even these precautions will not always be successful since the x-ray film will not give us much information as to infiltration and metastasis in the deeper soft parts. "An expensive procedure," you say. Yes!—but one which may save the patient needless surgery. What we very often forget is the fact that patients with carcinoma of the breast do not die of the primary growth, but they die from the secondary manifestations of the disease.

If the surgeon is guilty of this omission, the radiologist is also. Very frequently the immediate area of the disease is the only one treated, and still the patient may complain of backache or pain in the hips. Here x-ray examination often reveals lumbar or pelvic metastasis. Immediately the patient or the physician who is antagonistic to radiation draws the conclusion that radiation "spreads the disease"—a fact not substantiated by the observation of trained radiotherapists. The inference is obvious; if it is necessary for the surgeon to know the extent of the disease through complete x-ray examination, it is more so to the radiologist, for he is the "court of last appeal" in the advanced case. Of what benefit is it to treat one portion when other portions are progressive? The patient has a right to this consideration; the radiologist must do so to protect his reputation against the attack of "Another Radiation Failure."

We shall not enter into the relative merits of preoperative or postoperative radiation, but no matter how good it is, it cannot overcome incomplete surgery. Once the malignant field is deliberately or accidentally entered by incision and the disease only partially removed, radiation is fighting a losing fight, since the natural lines of defense have been broken down. Distant metastatic areas discovered shortly after operation are the fault of too hasty action and too little study, while localized recurrence in scar, flap or glands is due to incomplete surgery and inability to recognize the periphery of the growing border.

Why some advanced cases should stay well after haphazard treatment is a puzzle. Why the disease

should remain stationary for months or years, and then suddenly become active is unexplainable according to our present knowledge. We are pleased to term this phase "individual resistance" or, as some men term it, "immunity." Evidently there is some metabolic factor at work which we as yet do not understand. When this is understood, then we will be able to overcome our therapeutic failures in carcinoma of the breast.

ORVILLE N. MELAND,
Los Angeles.

General Pathology and Immunology

Germicidal Action of Soap—The value of soap as a germicidal agent has again been emphasized by WALKER¹, who has extended his previous work to include the action of soaps on meningococcus, gonococcus and pathogenic microorganisms of the intestinal group. Walker found that the susceptibility of meningococcus and gonococcus are such that they are readily killed by any ordinary soap. Thus, 0.04 per cent soap solution has the same germicidal action on the meningococcus as 1 per cent phenol, while a 0.006 per cent soap solution rapidly kills gonococcus.

Walker also found that paratyphoid and dysentery bacilli are usually killed by a 0.8 per cent to 1.6 per cent solution of the soaps of the saturated acids (e. g. K palmitate), but that they are completely resistant to a 6 per cent soap solution of the unsaturated acids (e. g. K stearate, Na.oleate). The most readily available commercial soap to be used against these microorganisms is, therefore, salt water soap prepared exclusively from cocoanut oil.

W. H. MANWARING,
Stanford University.

Proctology

Tumors of the Rectum Exclusive of Carcinoma—The most frequent tumors in the rectum are polypi and carcinomata. Both offer, as a rule, but little difficulty in diagnosis. Polypi with great frequency degenerate into carcinomata. Polypi are adenomatous in nature and are either single or multiple. In appearance they are sometimes juicy-looking, smooth nipple-like dependent processes covered by and hanging from the mucous membrane. They are found both in the rectum and colon. At other times they are papillomatous and not smooth on the surface. Such occur in adults. There is an adenomatous polyp arising from the posterior wall of the rectum, most often single and stalked, which may be extruded from the rectum in children as a raspberry-like, easily bleeding tumor. It is supposed to arise from remains of the neurenteric canal. The above are all due to a hypertrophy of the glandular tissue normally found in the mucous membrane of the large bowel. A still further type of so-called polyp, but really of fibromatous as distinct from adenomatous origin, is the one arising near the junction of the anal canal and the rectum. This may be due to a fibrosed hemorrhoid or to a hypertrophied anal papilla. Its surface is smooth and of varying size, but most often is small. All polypi may be ligatured at the base and excised

if accessible, but it is easier to fulgurate the multiple adenomatous polypi. Excision of the bowel must be considered when so many are present as to prevent local treatment, since they are definitely capable of becoming malignant.¹

A rare tumor of the rectum is the villous growth or papilloma with many delicate fronds like that in the urinary bladder. This may likewise become malignant at the base, and excision is indicated.

In the walls of the rectum a true fibroma, myoma, or lipoma may occur. Sarcoma² also is found and if of a melanotic nature, is very dangerous owing to rapid blood-stream infection. It causes less pain than carcinoma and ulcerates less quickly. Radical and early excision is indicated. Hodgkin's disease has been seen in the rectum by the writer. It occurs in the lymph follicles beneath the mucous membrane.

The pararectal tumors are mainly chondroma, endometrioma, dermoid, teratoma, sacrococcygeal tumor, and chordoma. The chondroma creates a large mass in the hollow of the sacrum, and constricts the rectum; its presence may be confirmed by the roentgen rays. The endometrioma occurs in women and bleeds irregularly at the menstrual period. Removal or irradiation of the ovaries should be performed before removal of the rectum, if this latter operation appears advisable. The dermoid is a postrectal tumor arising from the sexual cells of the germinal ridge, while the teratoma presents tissues arising from full differentiation of the original impregnated cell. The dermoid is epiblastic only. But the sacrococcygeal tumor is of neurenteric origin having columnar epithelium, fat and muscle, but no bone. The chordoma is found behind or in front of the sacrum as well as at the base of the skull and behind the pharynx. It originates from nerve tissue like the suprarenal cortex and shows a similar foamy cell in its structure. For all these growths excision is indicated.

M. S. WOOLF,
San Francisco.

Ophthalmology

Telescopic Spectacles—One of the advances made in recent years in the manufacture of spectacles for individuals with very poor vision has been the telescopic spectacle by Zeiss. This is a compound lens, consisting of a convex anterior lens and a concave posterior lens, the latter also containing the patient's correction for ametropia. The effect is that of about a two-power opera glass. As the lenses are compound, they are easier to fit if the patient has only one useful eye, for the visual axes of the lenses must be very accurately adjusted to prevent diplopia where both eyes are used. Gradle and Stein¹ report sixteen cases where telescopic lenses were fitted to give better vision to patients who had poor vision due to incipient cataract, choroiditis, high myopia, and amblyopia. In all these cases the vision was doubled or better, and with the addition of an object lens slipped over the front of the distance

glasses reading vision was obtained. They emphasize the necessity for perseverance and trial of the lenses, and even then many patients will not wear them. In my own limited experience I found only one out of five patients examined who would accept the telescopic lens for wear.

The patient's full correction of his ametropia is given in addition to the telescopic unit. The vision is increased two or more times, that is, a patient with a vision of 20/100 will get 20/50 or 20/40 with the telescopic unit. A patient with a vision of 20/70 or 20/100 cannot read newspaper print with ordinary glasses, but with the telescopic unit and the addition of a plus sphere of three to eight diopters over the objective he can usually read newspaper print. The field is large enough to follow the lines continuously. The distance field of vision is restricted to 24 degrees with the telescopic lens.

The conditions in which the lenses may be used are mentioned above, and include incipient cataract, corneal opacity, high myopia, retinochoroidal changes, and amblyopia. The patient must learn to judge distance with the new lens, as everything appears much closer to him. Many of the combinations must be ordered from Germany; the price of the lenses is from \$50 to \$75. The adjustment of the spectacles is difficult and many patients will not persevere enough to get accustomed to them.

Recently Mayer² reports a series of eighty-five eyes examined, in which sixty showed improvement with telescopic lenses. But he also emphasizes the difficulty of becoming accustomed to the lenses, especially where they are prescribed for both eyes.

The feature that seems to be most attractive is the possibility of giving patients reading vision with the telescopic lens who cannot read with ordinary lenses.

M. F. WEYMANN,
Los Angeles.

Surgery

Hernia—The operation of hernioplasty, in spite of many improvements, is still followed by a high incidence of recurrence of the hernia. This is partly due to the practice of permitting younger members of the staff to perform the operation on ward patients, and partly to a feeling, no doubt inspired by this practice, that it is a simple procedure which anyone may perform after one or two trials. As a consequence of this very limited experience in seeing and doing hernioplasties, a standard procedure is adopted and attempts are made to apply this one procedure to all forms and degrees of hernia. Nothing could be subject to greater criticism.

The conditions essential for the cure of the inguinal hernias are:

1. A high ligation and complete extirpation of the sac.
2. The approximation of adequate tissues with-

1. Dukes, C.: Brit. Jour. Surg., 1926, xiii, April, 1927.

2. Weeks, J. H.: Surg., Gyn. and Obst., March, 1927.

1. Gradle, Harry S., and Stein, Jules C.: Transactions of Section on Oph., Am. A., 1924.

2. Mayer, Leo: Amer. Jour. Oph., Vol. 10, p. 256, April, 1927.

out tension to close the defect in the abdominal wall.

3. The absence of infection.

1. *High Ligation of the Sac*—The constriction and narrowing of the indirect hernial sac at the upper end of the inguinal canal is familiar to all surgeons, and closure at the uppermost point of this narrowing where the peritoneum suddenly flares to form the larger abdominal cavity, is usually considered a sufficiently high ligation. That it does not always suffice is often apparent in a hernia of any duration, in which the neck has descended in the inguinal canal pulled down by the weight of the contents of the sac, dragging along with it a large cone-shaped pouch of peritoneum which may be the predisposing cause to recurrence if left untreated. Accordingly, it is a good rule always to carry the dissection of the sac medially, displacing the epigastric vessels, clearing away the prevesical fat and developing the sac to a point where the bladder may be identified.

In every instance, careful digital examination of Hesselbach's triangle is made from within the oblique sac to determine the presence or absence of a direct sac or pouch internal to the epigastric vessels. If this pouch is present it must be entirely freed and excised together with the oblique sac. When looked for routinely it is surprising how often it is present as a potential cause of recurrence if left untreated.

2. *The Approximation of Adequate Tissues Without Tension to Close the Defect in the Abdominal Wall*—In inguinal hernias, the defect in the abdominal wall depends in large measure upon the muscular development of the patient, upon his age, and upon the duration of the hernia. In children and young adults, the muscular and fascial development is adequate to make the simple Halsted-Ferguson-Andrews operation without transplantation of the cord the operation of choice. The defect is repaired by approximating:

1. The conjoined tendon and the edge of the internal oblique and transversalis muscle to the under surface of the inguinal (Poupart's) ligament, the cord emerging at the pubic spine.

2. The external edge of the divided external oblique to the tendinous portion of the internal oblique.

3. The internal edge of the divided external oblique to the outer surface of Poupart's ligament. All approximations are made with interrupted sutures, tied loosely so as not to crush and kill the delicate muscle cells.

In indirect hernias of long duration with obvious attenuation of the tissues comprising the conjoined edge of the conjoined tendon is sutured to Poupart's ligament underneath the cord. The external edge of the divided external oblique is sutured to the tendinous portion of the internal oblique, underneath the cord, and the internal edge of the divided external edge is sutured to the outer surface of Poupart's ligament, also underneath the cord. The cord emerges at the site of the internal ring and lies superficial to the muscles but below the deep fascia.

In many indirect hernias and in practically all direct hernias, this operation of Bassini is not available as it entails an approximation of tissues pre-

viously so widely separated that permanent healing would be the exception rather than the rule. It is a better practice, therefore, to employ in all such instances a transplantation of the sheath of the rectus. The internal edge of the divided external oblique fascia is elevated exposing the sheath over the lower portion of the rectus and pyramidalis muscles. A curved incision is made in the rectus fascia near the midline, the fascia being severed first longitudinally and then horizontally along its attachment to the pubic bone. This flap of fascia, well nourished by its continuation with the tendinous portion of the oblique muscles is turned as on a hinge so as to lie underneath the cord and is approximated to the under surface of Poupart's ligament with interrupted sutures. The external edge of the divided external oblique is sutured to the cut edge of the rectus fascia as far as possible and to the surface of the rectus and pyramidalis muscles.

The internal edge of the external oblique muscle is sutured to the outer surface of Poupart's ligament. The cord emerges from the upper angle of the wound and lies in the subcutaneous tissues. The defect has been covered by three layers of fascia, closure being obtained without tension and by the use of living, well-nourished tissue. It satisfies the conditions for ideal repair more nearly than any of the other procedures and should be more frequently and more widely employed—consistently for all direct hernias and usually for the indirect hernias of long duration with only attenuated tissues for repair.

EMILE HOLMAN,
San Francisco.

Urology

Ureteral Stricture—In view of the clinical importance of ureteral stricture and the recognizable difficulty in the diagnosis, the studies of Schreiber¹ in 100 consecutive autopsies have a great deal of interest. The work of Hunner deserves credit in focusing the attention of the profession in general and particularly of urologists to the importance of ureteral stricture, but Hunner's ideas have been regarded by the majority as somewhat extreme and his findings have not been universally confirmed. This may be due to the differences of interpretation of just what constitutes a ureteral stricture. Hunner has insisted that these strictures are localized intrinsic inflammations, the majority of which are secondary to focal infection and are bilateral in most instances. Schreiber found post-mortem incidence of ureteral stenosis in 12 per cent of his one hundred autopsies, which supports Hunner's contention of their frequency. In ten of his one hundred autopsies there was definite "hydro-uretero-nephrosis" due to ureteral stenosis which the clinical records showed to have been symptomless. But a pathological study of the obstructive causes in these cases failed to confirm Hunner's clinical studies of a localized inflammatory process, metastatic in character due to focal infection. As prime factors in the pathogenesis of ureteral obstruction, Schreiber lists the following: (1) Congenitally accentuated narrowing of a congeni-

tal physiologically narrow site. (2) Extension of inflammatory processes into the ureteral wall from adnexal disease with and without thrombophlebitis and advanced chronic cystitis. (3) The occluding kinking power of crossing anatomic structures, namely, the vas deferens in the male and uterine artery in the female. These stenosing conditions occurred in practically every instance in a ureteral zone 2 to 6 cm. from the ureterovesical orifice. These pathological findings have a great clinical significance with respect to the diagnosis of ureteral obstruction and largely nullify the value of the reputed hang of a bulb in the diagnosis of these conditions, as there are too numerous physiological sites of narrowing to produce this hang. There remains, therefore, the evidence of ureterography as of most value in the diagnosis of these obstructive conditions.

This contribution is particularly interesting in connection with one by W. J. Carson,² who found ureteral dilatation in thirty-one cases of 115 consecutive autopsies on females, in whom there were forty-nine hydro-ureters with hydronephrosis above in forty-six instances. Pregnancy is considered by Carson as the most frequent cause of these ureteral dilatations. Ureteral stricture of definite inflammatory origin was found, however, in four cases, of which it was bilateral in two and in one case there was a congenital ureteral stricture. These pathological studies emphasize the fact that ureteral stenosis of other origin than a localized inflammatory process is of much greater frequency than clinical studies have indicated. It has long been recognized that obstruction is the primary factor of pyelitis of pregnancy ever since 1841, when Cruviellier published his first observation of ureteral dilatation in deaths following or during pregnancy. Kretschmer's pyelographic studies in 1925 fully emphasized the relationship of stasis to the incidence of pyelitis of pregnancy, finding bilateral dilatation in nine cases and unilateral dilatation in seven of nineteen cases studied. And in eleven cases of acute pyelitis of pregnancy there was dilatation of the ureter and kidney pelvis in every instance. These ureteral conditions are of further importance as the cause of obscure abdominal pain, it being fully recognized today that abdominal pain is never pathognomonic in itself and that any intra-abdominal lesion may produce pain simulating that considered typical of some other intra-abdominal organ. These obscure ureteral conditions are particularly important with respect to differential diagnosis from chronic appendiceal and gall-bladder conditions, and it is always a safe procedure in every obscure appendiceal or gall-bladder condition to have complete urological studies made before subjecting any case to an exploratory.

FRANK HINMAN,
San Francisco.

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Gastro-Intestinal Diseases

Cholecystography — Cholecystography has brought to the diagnosis of gall-bladder disease a degree of certainty long wished for. The accumulated statistics from widely separated clinics reveal an agreement of approximately 95 per cent between the cholecystographic and operative findings. However, this apparent accuracy brings with it a very real danger, namely, that with its more general adoption clinicians will be unduly influenced by the roentgenographic reports although the test may have been improperly carried out or the findings improperly interpreted.

It must be recalled that cholecystography is not a mystical procedure for differentiating normal from pathological gall bladders, but is merely a test of the functional activity of the entire biliary tract. Although it is true that abnormal cholecystographic findings are usually due to some disturbance in gall-bladder function, in the individual case it must not be overlooked that a decreased excretory function of the liver or a disturbance of the sphincter mechanism at the lower end of the common duct may also produce abnormal findings.

Another source of possible error lies in the tendency to accept abnormal cholecystographic findings after the oral administration of the dye as indicative of gall-bladder disease. For the present it seems advisable to recheck these apparently abnormal cases with the intravenous administration of the dye before drawing final conclusions.

There has as yet been no definite correlation between the pathological processes found in the gall bladder and the functional activity of the gall bladder as evidenced by cholecystography. In a careful study to be reported by Chandler and Newall it was found impossible to in any way prophesy the pathologic histology from the cholecystographic findings. It is possible that some pathologic gall bladders may function sufficiently well to give normal cholecystographic findings, and that some normal gall bladders may fail to visualize because of functional disturbance elsewhere in the biliary tract. Let us then utilize cholecystography to the utmost, but remember that as clinicians our responsibility does not cease upon the receipt of a laboratory report.

W. W. BOARDMAN,
San Francisco.

Bacteriology and Parasitology

Intestinal Protozoa — For many years the majority of the intestinal protozoa were considered non-pathogenic and to only one or two varieties were attached significance with regard to a probable pathogenic rôle. During and following the World War we find a renewed interest in the intestinal protozoa, due chiefly to the finding of the few parasites then considered as pathogenic quite widespread throughout the world, and the frequency of their occurrence without symptoms. However, the tendency of modern authors

is distinctly toward a pathogenic rôle for most of the protozoan parasites.

In discussing the action of the intestinal protozoa Rawson J. Pickard,¹ in a recent article, states: "Conjoint life is a test of strength between its participants. The relationship is seldom a true symbiosis, of benefit to both; practically always one party is the giver, and even when he gives from excess he must always be on guard lest his partner, flourishing, does not take from his need. . . . A change in environment changes their relative strength, so that from a benign commensalism, in which the lesser lives upon the waste of the greater, they may pass into a parasitism causing the disease or death of one of the participants. *Thus a parasite ignored in its weakness may attack from strength, or from numbers, when conditions favor it.*"

Kofoïd² believes that our main difficulty has arisen from attempting to carry over ideas in bacteriology and applying them to the domain of parasitology, and states: "We have been highly trained in thinking from the bacterial point of view since the days of Pasteur, and poorly trained in thinking from the point of view of protozoan infection."

Quoting further from Pickard: "Yet with any parasite, however tolerant the association may appear as deduced from the crude tests we are able to apply in our laboratories, there exists a complex counterreaction between the host and the parasite, the complexity increasing with the differentiation of the organs of the associates. At one extreme the protozoan is quite definitely and evidently harming its human host; at the other extreme the protozoan is not only well enough tolerated that no signs of damage can be discerned, but on the basis of encystment, might be said to be on the defensive. . . . *The summary dismissal of species which are probably not pathogenic, as harmless, however, is not a 'scientific' attitude. . . . Any such toxic products although not reabsorbed would be a menace, so that the harmlessness of these organisms must be proved rather than their pathogenicity defended. . . . It is possible that 'non-pathogenicity' of the small races as seen by Brumpt, Dobell, and other European observers is because their patients are more stoical, less apt to note or complain of the discomforts of life, more likely to accept them as the inevitable accompaniments of advancing age, than the American with whom luxuries have become a necessity, and who, somewhat softened by gynarchy, is attempting, and in this case with some success, to feel 'as young as he ever was.'*" Brown³ thinks amebæ are a factor in obscure

abdominal complaints associated with neurasthenic symptoms.

Hegner⁴ in a recent review of the intestinal protozoa gives a pathogenic rôle to an increasing number of the ameba and to some of the flagellates,⁵ ciliates and intestinal coccidia.

In a recent survey of a class of seventy medical students, I found an infestation by one or more of the various intestinal protozoan parasites in a single stool examination of approximately 50 per cent. The possibility of pathology developing under circumstances when the parasites become excessively numerous or active offers us a wide field of study. While the difficulties of arriving at conclusions in the study of the protozoan parasites is great, yet the progress that has been made by the protozoologist during the last eight years is sufficient to indicate that when our knowledge of the subject is complete, some rather revolutionary facts will be added to our present knowledge of gastro-enterology.

H. E. BUTKA,
Los Angeles.

Orthopedics

Colles' Fracture—In any medical meeting there are certain subjects whose introduction is always a signal for a heated argument. Colles' fracture is one of them. The lesion is the despair of the uninitiated, and is the cause of many damage suits. In the East it is probably much more frequently seen than in California, but it is by no means rare here. After a fall of snow in the East the ordinary clinics look for a run of cases.

Colles' fracture is usually ascribed to a fall on the extended hand. If we fall forward we put both hands in front of us to catch the weight, and do not fracture either wrist. If we slip and fall, as one foot slides out in front we go down somewhat sideways, and land on the heel of the extended hand. The radius is fractured in its distal inch, and this fracture is generally accepted as a Colles' fracture. The fracture may or may not be comminuted, or impacted; silver-fork deformity and fracture of the styloid process of the ulna may or may not be present; the wrist may or may not be broadened.

The comminution or the impaction is easy to understand. The tilting backward of the distal fragment of the radius, which causes the silver-fork deformity, or the tearing off the tip of the styloid process of the ulna, or the broadening of the wrist are less obvious. Experiments on the cadaver show that extreme forced superextension of the hand can cause the characteristic silver-fork deformity, probably by tension on the anterior ligament of the wrist, but it is doubtful if this is really what takes place when we fall on the heel of our hand. The explanation is probably as follows: The distal inch of the radius, when sawn across, shows a distinct triangle, with

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its base anterior. When a crushing force is applied to it on a line midway between the base and the apex, and parallel to the base, the weaker apex yields and is impacted. The broadening of the wrist is caused by the tearing loose of the radio-ulnar ligaments. The fracture of the tip of the ulna styloid is hard to understand. It is usually ascribed to pull through the medium of the triangular cartilage, but the anatomy teaches that the articular disc attaches to the base of the styloid process, not to its tip. The tip gives attachment to the ulnar collateral ligament, and when the radius gives way this is not put upon the stretch.

In Colles' fracture the hand is wont to be in abduction also. This is easy to understand if the radioulnar ligaments hold, but not otherwise.

Naturally when so much difference of opinion exists as to the mechanism of a fracture, ideas of its treatment also differ materially. The problem is complicated by the fact that some cases of Colles' fracture, left untreated or treated in a most slovenly manner, give excellent functional results, while others entrusted to skillful hands result in stiff and painful wrists. Hence, if after treating many cases with good results, I encounter one of this last group, I am quite likely to abandon my methods which have heretofore given me satisfaction, and adopt some radically different method. If I have been immobilizing I will mobilize early, and the reverse.

Just why is it that some cases of Colles' fracture yield a stiff wrist under any form of treatment? The most plausible explanation is that there was some pre-existing infectious disease locked up in the bone marrow, and that the intra-articular fracture set it free into the joint and thus caused an infectious arthritis. Moral: Advise your elderly patients with alveolar abscesses, when they suffer a Colles' fracture, to have their abscessed teeth extracted, and to have their stools examined for protozoa.

The methods of treatment of Colles' fracture are manifold. It would take too long to describe them, and the theories upon which they are based. One safe rule of treatment may be relied on—if there be any impaction, break it up.

It is well to insist on an anesthetic for breaking up the impaction. We may be able to do it without, but if we fail, the patient will rarely give us a second chance. If he refuse an anesthetic he should sign a written statement to that effect. This will be a good document to have in case of a damage suit. Primary anesthesia is usually enough. To break up the impaction the hand may be grasped in the handshake position and pulled forcibly with flexion and extension, or the distal fragment may be pushed forward with the thumbs. Perhaps the best way is to grasp each fragment of the radius with one hand and to move the two backward and forward until mobility is certainly felt, and the fragments can be felt to grate on each other—crepitus. Sometimes it is necessary to use the knee for a fulcrum. The main thing is to be sure that the fragments move on each other. When the impaction is overcome the silver-fork deformity disappears, and has little tendency to recur. It is useless to try to correct

the abduction by adduction of the hand, for we simply obtain adduction in the wrist joint, not at the seat of fracture, but an effort may be made to push the distal fragment into place with the thumb, and to hold it there with the splint.

The succeeding treatment is largely a matter of individual preferences. Some put the hand up in flexion, some in extension. All sorts of splints have their advocates. Possibly the old method of a circular strip of adhesive plaster, with the hand in a sling might give almost as good results as any if we could be sure of protecting the hand from injury. I like a plaster of Paris gauntlet, with the fingers and thumb left free, and the hand in very slight flexion—almost an indifferent attitude. The splint may be left on for about a week, or for six or eight weeks. During this time active and passive motions may be carried on, or they may not. It makes little difference, I think. However, if the fingers and thumb have been left free, active and passive motions in them are advisable.

LEONARD W. ELY,

San Francisco.

Neuropsychiatry

Hypomanics at Large—Some time ago the Superior Court of one of the larger counties of California faced a peculiar predicament. Before it, charged with insanity, stood a man in early thirties. He smiled, enjoying the situation. He was alert, clear eyed, exceptionally quick in response and eager for action. His repartees often elicited a burst of merriment from the audience, generally at the expense of the prosecuting attorney. The witnesses alleged he had developed a million-dollar real estate scheme with no backing; he gave five-dollar tips to porters; he danced the Charleston in public streets to the tune of an Italian hand organ; he gave, or attempted to give, a banquet to fifty prominent business men, "just to boost the town"; he undertook expensive trips "on business," but without aim; when his wife objected slightly he pushed her off the train at a little station two thousand miles from home and without funds.

"However," the young man said on the stand, "who can prove my real estate scheme would not have worked; many a porter is underpaid and deserves \$5 for encouragement; a Charleston in the street is not illegal, nor specially different from one in the dance hall; it surely is no wrong to boost the town one lives in; the banquet would have been wonderfully helpful had it not been for the moss overgrown reactionaries; the trip on business is a common enough procedure; and, since the wife objected going with me any further, why not help her off the train?"

And so the men, "good and true," and the Superior Justice decided the young man might have been slightly "too energetic," but certainly was not insane. And the young man, in turn, thanked the court, touched his thumb and hand to his nose in characteristic gesture at his accusers, and went his way. In the following three months he wasted two-thirds of his property,

made a host of enemies for himself and established a reputation for irresponsibility which never can be wiped off.

And then came the change. The flush of excitement left the cheeks, the eyes lost their brilliancy, the ideation its flight and psychomotor responses their promptitude. Instead a very subdued, hesitating, pale-faced man slouched before his former associate and friend in business—the one who had tried to stop him. Standing before him, with tear-flooded eyes, he asked: "Can you ever forget and forgive? Oh, God! What had possession of me? What made me do such dreadful things? Was there no way to stop me before I ruined myself and family?" The pendulum had swung in the opposite direction—from elation to depression. The color screen of mental processes changed from brilliant, rosy hue, to bluish gray; the joyful facility of response to a burden of painful effort.

That was one of the hypomanics at large. From the barely perceptible increase of "elan vital," judged by friends an unusually good state of health, to bombastic, precipitous, reckless, and sleepless activity they range. They write wordy books, they preach new religions and politics, they sweep many uninitiated into overconfident schemes, they invent new and fabulous devices to cure humanity, while "hypomania" drives, only to disappear or suicide when depression replaces elation.

Even physicians are caught now and then by the force, glamour and cheer of the hypomaniac. So on he rushes, the already overactive brain further stimulated by the applause. And what he needs is rest in bed in the quietest place which can be found.

V. H. PODSTATKA,
Livermore.

Urology

Neutral Acriflavine—The flavines, especially neutral acriflavine, are very important adjuncts to modern urological treatment. The flavines are anilin dyes and have been used in medicine for many years, but neutral acriflavine was first used by the British in the World War.¹

At the present time it is used successfully in urology either for local application or irrigation, given by mouth or intravenously.

Locally—To be efficient in the local treatment of urological conditions a germicide must have the following characteristics:

- (a) Must be non-irritant and non-toxic to the mucous membranes of the urinary tract.
- (b) Must be able to penetrate into underlying tissues.
- (c) Must have high germicidal powers.³
- (d) Must not be made less active by contact with serous secretions.

Neutral acriflavine has all of these characteristics. Davis and Harrel² found the solution, if used in proper dilutions, to be non-toxic and only

slightly irritating to the mucous membrane of the urinary tract. They also found neutral acriflavine had the power of penetrating into the submucosa of the urethra and bladder. It inhibits the growth of gonococci in protein containing media in dilution of one to fifty million, and its bactericidal action is increased by contact with serum. Hyman⁴ states that in cases of acute anterior urethritis which have begun treatment with neutral acriflavine within four days after outset, a cure of 50 per cent of the cases may be expected in two weeks. It is also used as a bladder irrigation in cases of cystitis⁵ and for lavage of the renal pelvis. Neutral acriflavine is used locally in dilutions of 1:2000 to 1:10,000, and should be put up in normal saline.³ It should not be used more than once daily in the treatment of urethritis, as it may cause irritation without pain, thus tending to later stricture formation.⁴

Oral Administration of neutral acriflavine has been used in doses of $\frac{1}{2}$ to $1\frac{1}{2}$ gr. t. i. d. enteric coated tablets. It has been found by some observers^{6,7} that the urine is rendered germicidal after the oral administration of the drug in this dosage and they recommend its use by mouth in infections of the urinary tract.

Intravenous Administration—Neutral acriflavine has been recommended for intravenous administration in infections of the urinary tract by numerous authors. It is given in an 0.5 per cent solution, 25 to 50 cc. being recommended as the dosage for an adult, and is repeated every three to six days for not more than three injections.

Summary—Neutral acriflavine is probably the best gonocide in use at the present time, and has materially shortened the duration of the average case of gonorrhea. It is also efficacious in the treatment of other infections of the urinary tract and is used for irrigations or instillations, given by mouth and by intravenous administration.

ROGER W. BARNES,
Los Angeles.

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STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

PERCY T. PHILLIPS.....President
WILLIAM H. KIGER.....President-Elect
T. HENSHAW KELLY.....Vice-President
EMMA W. POPE.....Secretary-Editor

OFFICIAL NOTICES

The Walter Reed Memorial Fund—Dr. William H. Kiger, chairman of the Walter Reed Memorial Fund, reported the collection of \$195.65 from California at the last Council meeting for the above fund. It is the belief of the committee appointed to collect this fund that the same would be greatly increased were it given more publicity. Moneys collected are to be used to restore the birthplace of Walter Reed in Virginia and to establish, as a memorial, a chair for research work at the University of Virginia.

President William T. McArthur in December, 1926, appointed the following as members of this committee: William H. Kiger, 523 West Sixth Street, Los Angeles (chairman); Lyell C. Kinney, 1831 Fourth Street, San Diego; Charles L. Curtiss, Redlands; F. F. Gundrum, 400 Capital National Bank Building, Sacramento; Fred R. Fairchild, Woodland Clinic, Woodland; Raymond R. McGurk, Farmers' and Merchants' Bank Building, Stockton; Henry S. Rogers, Petaluma; Rexwald Brown, 1421 State Street, Santa Barbara; John Hunt Shephard, Twohy Building, San Jose; Edward N. Ewer, 251 Moss Avenue, Oakland; T. Henshaw Kelly, 490 Post Street, San Francisco.

Any member of the California Medical Association who desires to aid this work may send his contribution to Doctor Kiger, chairman, or to any member of the committee.

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The regular meeting of the Alameda County Medical Association was held at the Ethel Moore Memorial Building at 8:15 p. m. Monday, September 19, Dr. George Rothganger in the chair. The following program was presented:

Dr. M. L. Emerson discussed the general subject of gastric ulcer, especially gastro-enterostomy for the relief thereof, pointing out the frequency with which ulcers recur about the operative opening, or contraction of the stoma interfere with its function. Under these conditions it often becomes necessary for surgeons to take down the old gastro-enterostomy or to do a new posterior operation. Doctor Emerson described a quick method of approach in the operation for relief of these troubles illustrating same with models. He brought out the point that it was often necessary because of hemorrhage to get in quickly, take care of the immediate emergency, and get out as soon as possible in order to save the patient shock and loss of blood. He illustrated the possibility of making the new opening in either direction, pointing out that the three conditions which most often called for this type of work are postoperative hemorrhage, constriction of the opening, and recurrent ulcer.

The second paper of the evening was read by Dr. W. W. Crane on "Obstruction of the Common Bile Duct" without pathologic findings. The doctor dis-

cussed in some detail the physiology of the gall bladder and made an analytical study of twenty cases on whom cholecystectomy had been performed without success. These twenty cases representing all of the unsuccessful cholecystectomies performed at the Mayo Clinic in a series of one thousand cases, symptoms persisting or recurring. Second operations showed in all, severe adhesions at old operative site. In these cases drainage of from three to six months with a Deaver T-tube gave good results in 80 per cent. Ten per cent showed no results. The author believed that the unsuccessful cholecystectomies were cases in which infection persisted in the biliary system and the prolonged drainage enabled the patient to take care of the infection. Dr. M. L. Emerson discussed the paper reporting several similar cases and emphasizing the value of the T-tube drainage saying that, in his experience, it was often necessary to drain from six to twelve months. Doctor Lawson called attention to the value of the so-called medical or internal drainage in similar cases.

The third paper of the evening was on the topic "Cancer of the Uterus" by Dr. E. N. Ewer, who reviewed the entire subject most thoroughly. He discussed recent researches in this field and reviewed the work being done in the various European cancer clinics. The doctor emphasized the necessity of early surgery, especially in the precancerous stage, and discussed the use of radium in uterine malignancy. Doctor Ewer's paper was discussed by Dr. Emil Beck of Chicago, who reviewed the action of alpha, beta, and gamma rays of radium and added his personal experiences with it in the treatment of malignancy in general.

GERTRUDE MOORE, *Secretary.*

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CONTRA COSTA COUNTY

The Contra Costa Medical Society held its first fall meeting Saturday, September 24, 1927, in Richmond, California.

Doctor McCullough presided. It was purely a business meeting at which the Constitution and By-Laws of the society were discussed with a view of revising them to conform with the model Constitution and By-Laws advocated by the American Medical Association for county societies.

S. N. WEIL, *Secretary.*

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RIVERSIDE COUNTY

The regular meeting of the society was held October 10 in the library rooms of the Riverside Community Hospital. A report from the committee of medical publicity showed that during the past three months they had carried a series of articles in the *Riverside Daily Press* covering such subjects as Prophylactic of Diphtheria, Appendicitis, Tonsils and Adenoids, Diet, and Infantile Paralysis. These articles set forth in brief but convincing way the subject-matter which should prove of special value to the public.

The first paper of the program was given by Dr. Joseph W. Cook of Banning, on his tour of the clinics of Switzerland, France, and England, where he investigated the treatment of tuberculosis by heliotherapy. He enthusiastically endorsed the treatment by heliotherapy.

The second paper was by Dr. A. Gottlieb, covering the subject of joint tuberculosis. He advocated

the treatment of joint tuberculosis by heliotherapy primarily.

These papers were considerably discussed.

Visiting doctors from the San Bernardino County Medical Society and the March Field staff of medical officers were present.

T. A. CARD, *Secretary*.

SACRAMENTO COUNTY

The September meeting of the local society, held in the Empire Room of the Hotel Sacramento on the evening of the 20th, was attended by sixty-four. This included, approximately, ten health officers, who were in the city attending the meeting of the League of California Municipalities.

The minutes of the previous meeting were read and approved.

George S. Iki presented a rare and most interesting case—an osteitis of the skull following typhoid fever. Doctors Gundrum, Reardan, Haig, and Brendel expressed their interest.

Norris Jones reviewed the histories of three recent cases of anterior poliomyelitis coming under his care. This provoked a discussion of control and treatment of the disease. Soutar, Babcock, Gundrum, Thomas, Beattie, Lindsay, Cress, Kellogg of Berkeley, O'Neil of San Francisco, De Lappe of Modesto, and Haig discussed the subject.

The first reading of the applications of Louis Gouget, Raymond Primasing, and Max C. Isoard took their usual course. After the second reading of the application of Frank A. MacDonald a vote was taken which resulted in his unanimous election to the society.

The report of the board of directors told of the transfer of Leonard W. Weaver to the Alameda County Society.

The board had referred the transactions which resulted from the meeting of medical committees with New York lay organizations interested in medical subjects to our public relations committee.

Amendments to the Constitution and By-Laws, as presented by that committee, were approved by the board.

A communication was received from Clyde G. Reynolds advising us of his new location at Yreka.

The 1928 committee moved that an assessment of \$10 be levied for use during the 1928 convention. The motion was carried unanimously.

There was a routine reading of the four amendments to the Constitution and By-Laws.

Charles E. Schoff, who recently returned from a several months' visit in Europe, told us of the contacts he made there.

The meeting adjourned to a light buffet supper.

BERT S. THOMAS, *Secretary*.

SAN BERNARDINO COUNTY

Minutes of the meeting of the San Bernardino County Medical Society held at the San Bernardino County Hospital on October 4, 1927.

Meeting called to order by the president at 7:15 at which time dinner was served.

Attendance, including guests, seventy-five.

The program of the evening consisted of reading of the minutes of the previous session.

Secretary-Treasurer's report, which was accepted, and the dues for the ensuing year fixed at \$15.

Doctor Meyer spoke briefly on poliomyelitis.

The president of the Board of Supervisors addressed the meeting.

The election of officers resulted as follows: Dr. G. G. Moseley, president; Dr. E. L. Tisinger, first vice-president; Dr. Fred Moore, second vice-president; Dr. E. J. Eyttinge, secretary-treasurer.

Next came the address of the retiring president. Then the motion picture travelogue of eastern medical

centers by Dr. Floyd Thurber of Los Angeles. Dr. George Dock of Pasadena read the final paper, entitled "Some Sudden and Dangerous Conditions."

Following his induction into the office, Doctor Moseley made a few remarks and upon the conclusion of the meeting extended the thanks of the society to Doctors Thurber and Dock.

E. J. EYTINGE, *Secretary*.

SAN DIEGO COUNTY

The opening meeting of the County Society after its summer recess was held on the invitation of Commandant Spear at the United States Naval Hospital. An excellent chicken dinner was partaken of in the officers' mess room after which those in attendance, numbering about 150, gathered in the Red Cross auditorium where the following excellent program was given by members of the hospital staff:

Dr. Raymond Spear, chief of staff, presented about a dozen postoperative thyroidectomy cases, showing the results after several months and indicating briefly their condition before operation. Captain Spear is to be congratulated upon the judgment and surgical skill expressed in the results.

Dr. H. S. Summerlin, the hospital pathologist, commented briefly on the findings in the tissues removed.

A case of encephalitis lethargica, apparently on the upgrade although still quite lethargic, was presented and discussed by Dr. H. N. Miller.

The unusual results of a severe gunshot wound of the shoulder joint was discussed by Dr. W. S. Sargent. Apparently the main nerves of the arm were about the only tissues to escape injury, and the arm gives promise of being a useful member still.

Dr. H. A. Garrison, the urologist of the staff, talked very entertainingly on the question of strictured ureters, illustrating his remarks with some good x-ray pyelograms. He also showed a large "staghorn" kidney-stone specimen which he had removed, describing some of the difficulties encountered in its removal.

Dr. H. L. Dollard showed a patient whom he had directed through an interesting siege of pernicious anemia, and discussed the modern methods of its treatment.

The changes in the myocardium occurring in rheumatic fever were illustrated by electrocardiograms presented and discussed by Dr. R. L. Nattkemper.

An unusual, prolonged but finally well-authenticated case of typhoid fever was described and discussed by Dr. A. L. Bryan.

Doctor Gradwohl of St. Louis, an officer of the Naval Reserves, visiting this hospital, gave an interesting lantern slide demonstration of his methods of identifying and cultivating the gonococcus.

At the conclusion of this excellent and varied clinical program a lighter view was introduced in the form of the short moving-picture comedy, "You're in the Navy Now."

The regular monthly staff meetings have been resumed in Mercy Hospital, Scripps Memorial, and the San Diego General.

The San Diego Mental Hygiene Association in affiliation with the Mental Hygiene Association of Southern California featured Dr. Elizabeth Wood, psychologist to the Los Angeles public schools at its monthly dinner meeting in September.

The Medical Library Association has moved into its new quarters in the Medico-Dental Building, where on the fourteenth floor it opens upon roof promenades presenting beautiful panoramic views of the entire horizon.

Dr. Thomas O. Burger is spending a few weeks visiting eastern surgical clinics and attending the American College of Surgeons meeting.

ROBERT POLLACK.

SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held at the Medico-Dental club-room, corner of North Sutter Street and Miner Avenue, Thursday evening, October 6, 1927. The

president, Dr. J. W. Barnes, called the meeting to order at 8:30 p. m. Thirty-five were in attendance. Those present were Drs. E. A. Arthur, S. R. Arthur, J. W. Barnes, E. L. Blackmun, H. J. Bolinger, C. A. Broaddus, R. A. Buchanan, H. S. Chapman, Fred P. Clark, Fred J. Conzelmann, J. T. Davison, J. F. Doughty, Linwood Dozier, C. F. English, P. B. Gallegos, E. C. Griner, C. D. Hollinger, J. P. Hull, H. E. Kaplan, G. H. La Berge, R. T. McGurk, A. H. McLeish, F. G. Maggs, F. S. Marnell, B. J. Powell, Dewey R. Powell, G. H. Sanderson, J. J. Sippy, C. V. Thompson, G. J. Vischi, B. F. Walker. Dr. Boyd Krout of the local health district, Dr. R. C. Kirkwood, medical director of the San Joaquin County Tuberculosis Sanatorium, and Dr. C. E. Stabler, dentist of Stockton were visitors. Dr. Wallace Irving Terry, guest and speaker of the evening.

The minutes of the previous meeting were read and approved. Dr. H. S. Chapman, member of the board of directors, announced that the board had invited the Northern District Medical Association of California to be guest of the society Tuesday, October 25, 1927.

The chairman presented Doctor Terry, professor of surgery, University of California Medical School, who spoke on "Operative Pulmonary Complications."

Doctor Terry's talk was subdivided according to the following headings:

Emboli, aspiration, age, sex, anesthesia, chilling, inhibition of cough reflex, interference with respiration, previous disease of the lungs, respiratory infections not connected with the operation.

Under the heading prevention, Doctor Terry advised preoperative bacteriostasis of mouth organisms with Berwick's dye. Statistics taken during the past four years at the University of California Hospital show less than half as many pulmonary complications when Berwick's dye has been used. Table posture is important, since fewer complications occur with the Trendelenberg position. The maintenance of the cough reflex is secured by avoidance of opiates. Non-interference with excursion of diaphragm is important, as a high incidence of complications occurs after upper abdominal operation.

FRED J. CONZELMANN, *Secretary*.

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SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held at the Cottage Hospital on Monday, September 12, with President H. E. Henderson in the chair.

The meeting was well attended by members of the society and about twenty visitors interested in social service and welfare work.

The first paper was given by Dr. H. C. Schumacher of Cleveland, Ohio, on "Child Guidance Clinics." This very interesting paper was discussed by Doctors Lamb, Means, Van Paing, Sullivan, and Miss Anne McCaughey.

This was followed by Dr. Samuel Robinson, who gave a paper on "Surgery of Bronchiectasis," with lantern slides, which was discussed by Doctors Profant, Geyman, and Brown.

The society then went into executive session and Doctor Jones of Lompoc reported on conditions relative to the management of the Santa Maria County Hospital. Upon discussion it was moved by Doctor Schurmeier, seconded by Doctor Lamb, that the president appoint an investigating committee to report back to the society at the next meeting regarding aforesaid conditions. The president thereupon appointed a committee for this purpose.

There being no further business the meeting adjourned.

WILLIAM H. EATON, *Secretary*.

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The regular meeting of the Santa Barbara County Medical Society was held in the Cottage Hospital on

Monday, October 10, with President H. E. Henderson in the chair.

Less than half the members of the society were present, although there were a few visitors.

The minutes of the last meeting were approved as read.

Dr. H. L. Schurmeier gave an unusual case report of dislocated cervical vertebrae. The discussion was carried on by Doctors Louman and Atsatt.

Dr. C. L. Lowman of Los Angeles gave a most interesting address on the treatment of poliomyelitis, with particular reference to the under-water exercises. Two reels of motion pictures graphically brought out the important points. Doctor Wright of Los Angeles opened the discussion. Questions were asked by various members of the society of Doctor Lowman, and Doctors Van Paing and Atsatt expressed appreciation for the excellent presentation.

A letter from the clinical and statistical section of the Los Angeles County Medical Association, inviting the members of this society to the annual Clinic Day to be held in Los Angeles on October 20, was read.

A letter from St. Francis Hospital, inviting the society to meet with their staff next month, and to hold as many of the regular meetings in their building as the society wishes, was read.

There being no further business the meeting adjourned.

WILLIAM H. EATON, *Secretary*.

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STANISLAUS COUNTY

On October 14, at the Hotel Hughson, the Stanislaus County Medical Society held their first fall meeting. There were twenty-six physicians present, and one of the most successful meetings of the year was the result.

Dr. Dudley Smith of the University of California talked on rectal diseases. His talk was extremely practical, and his work is recommended to all county societies in the state. Doctor Smith presents the subject as the man in general practice likes to have it. His diagnosis and treatment were particularly good.

Doctor Smith explained the diagnosis of carcinoma of the rectum and presented lantern slides for operative procedure. Doctor Coffey's operation was explained in detail. Doctor Smith has invented a clamp which simplifies the fifth and sixth stages of the Coffey operation. This modification lessens the time of operation and probably helps to prevent recurrence. Doctor Smith's explanation of his diagnostic methods was splendid. The local physicians insisted on his talking for over three hours.

Doctor Halliday, state health officer of Sacramento, gave a talk on poliomyelitis. Dean C. S. Morris of the Modesto Junior College asked for the cooperation of the physicians in college work.

J. W. MORGAN, *Secretary*.

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SAN FRANCISCO COUNTY

At the general meeting in September the program was furnished by the staff of the Mount Zion Hospital and consisted of a very interesting and comprehensive symposium on sterility in its various aspects.

Mount Zion Hospital staff has furnished a program for a general meeting during each of several years, and it is to be hoped that other hospitals may follow this lead and have their "nights" at the County Society.

The September meeting of the Eye, Ear, Nose, and Throat Section provided a very interesting discussion of retrobulbar neuritis secondary to accessory sinus disease, the consensus of opinion being that early operation, based on the diagnosis of the ophthalmologist, offers by far the most successful results.

The general meeting in October consisted of a symposium on nitrous-oxid-oxygen anesthesia in oral surgery, and it is apparent that this form of anesthesia in the hands of competent anesthetists and operators

offers many advantages over the usual ether anesthesia used in this type of work.

Meetings of the San Francisco County Medical Society are held every Tuesday evening at the home of the society, 2180 Washington Street, San Francisco, at 8:30 p. m., and it is hoped that any members of the California Medical Association who may find themselves in San Francisco on Tuesday evenings will attend these meetings, introducing themselves if they do not at once see some of their San Francisco acquaintances in the background.

T. HENSHAW KELLY, *Secretary*.



VENTURA COUNTY

At our September 20 meeting held at Ventura, John Warren Bardell was accepted for transfer from Imperial County Society.

Dr. Elliot Alden, Los Angeles, gave a talk on cancer of the stomach.

At the next meeting on October 11 at Oxnard, Doctor Duffield, Councilor of the Second District, is to be present.

Doctor Bardell is located in Ventura, paying special attention to eye, ear, nose, and throat work.

C. E. SCHULTZ, *Secretary*.

CHANGES IN MEMBERSHIP

New Members—Alameda County—Donald J. Manley, Hayward.

Los Angeles County—Herbert Anderson Jr., Louis V. Bilon, Denver D. Coleman, James H. Cryst, Mary L. Gilliland, Charles Gould, Harold I. Harris, Arthur H. Hixson, Lewis I. Kaffesieder, Melville L. Loomis, Dushan V. Medigovich, John H. Regan, Stephen G. Seech, Esther Somerfield, Charles E. Thompson, Frederick M. Turnbull, Frederic Waitzfelder, James W. Young, Los Angeles; Harold E. Peterson, San Fernando; F. Kearney Sauer, Beverly Hills; Richard C. Smith, Hollywood; Conrad N. Suttner, Long Beach; Carl R. Wagner, Howard V. Halbert, Pasadena; Nelson A. Young, Huntington Park; George A. Johnstone, Glendale; Adolph W. Kosky, Santa Monica.

San Diego County—Elliott G. Colby, San Diego; Glenn T. Logsdon, Oceanside.

San Francisco County—Francis Royal Hendricks, San Francisco.

Ventura County—John W. Bardill, Ventura.

Transferred Members—Earl W. Hill, from Humboldt County to San Bernardino County.

Leonard W. Weaver, from Sacramento County to Alameda County.

DEATHS

Bagby, Henry Clay. Died at Santa Barbara, October 1, 1927, age 67 years. Graduate of Missouri Medical College, 1881. Doctor Bagby was a member of the Santa Barbara County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Boyd, Walter Mason. Died at Long Beach, October 8, 1927, age 73 years. Graduate of the Columbus Medical College, Ohio, 1883. Doctor Boyd was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Lander, Charles John. Died at San Francisco, October 4, 1927, age 51 years. Graduate of the College of Physicians and Surgeons, San Francisco, California, 1910. Doctor Lander was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Seward, Lee Sanford. Died at Ahwahnee, October 17, 1927, age 38 years. Graduate of the Hahne-mann Medical College of the Pacific, California, 1913. Doctor Seward was a member of the Merced County Medical Society, the California Medical Association, and the American Medical Association.

UTAH STATE MEDICAL ASSOCIATION

W. R. CALDERWOOD, Salt Lake.....President
E. H. SMITH, Ogden.....President-Elect
FRANK B. STEELE, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....
.....Associate Editor for Utah

COMPONENT COUNTY SOCIETIES SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held in the Assembly Room of the Medical Arts Building, Salt Lake City, Monday, September 26, 1927.

Meeting was called to order at 8:15 p. m. by President W. G. Schulte. Eighty-two members and seven visitors were present.

Minutes of the previous meeting were read and accepted without correction.

The society was honored by the presence of Howard Fleming and Alson Kilgore, both of San Francisco. Doctor Fleming read an extremely interesting paper on "The Diagnosis of Neurosurgical Lesions." He limited his subject to tumors of the brain and spinal cord and illustrated his points with lantern slides. He discussed the latest diagnostic procedures and the differential diagnosis of the various lesions.

This paper was discussed by Garland H. Pace and J. R. Llewellyn.

Doctor Kilgore's subject was "Operative Room Pathology of the Breast." He discussed the normal breast, inflammatory conditions, malignancy, simple and papillomatous cysts. His classification was very clear and the differential diagnosis without microscopic examination was very well brought out. He illustrated his lecture by lantern slides.

This paper was discussed by R. S. Allison, E. F. Root, Clarence Snow, and John Z. Brown.

A communication from the U. S. F. and G. was read. It was moved by Clarence Snow that it be acted upon at the next meeting. Seconded and carried.

Albert Leigh and G. Coray were elected to membership.

Application for membership signed by David B. Gottfredson was read and turned over to the board of censors.

Amendment to the By-Laws providing for an increase of the dues from \$10 to \$15 was read and voted upon. The amendment was lost by a vote of 45 to 23.



The regular meeting of the Salt Lake County Medical Society was held at the Medical Arts Building, Salt Lake City, Monday, October 10, 1927.

Meeting called to order by President W. G. Schulte at 8:10 p. m. Sixty members and four visitors were present.

Minutes of the previous meeting were read and accepted without correction.

A. J. Hosmer presented a patient who injured his index finger, right hand, August 3, followed by an infection which necessitated amputation of the finger. A skin graft from the abdominal wall was made with good results.

E. N. Roberts of Pocatello, Idaho, read a paper on "Surgical Errors." He cited many case histories illustrating the various errors of technique, judgment, and diagnosis.

"The Development and Surgical Significance of the Orbicularis Oris Muscle" was the title of the paper read by T. F. Mullen of Pocatello, Idaho. He dis-

cussed the origin and the embryological development, illustrating his paper by lantern slides.

This very interesting paper was discussed by B. I. Burns, Department of Anatomy, University of Utah.

A letter from the U. S. F. and G. was read. T. C. Gibson moved that a committee of three be appointed to investigate the insurance contract and report to the society. Seconded and carried.

The Chair appointed T. C. Gibson (chairman), E. D. LeCompte, and R. R. Hampton as members of the committee.

Application signed by Orin A. Ogilvie was read. David B. Gottfredson was elected to membership. Adjournment at 9:40 p. m.

M. M. CRITCHLOW, *Secretary*.



UTAH COUNTY

At the first meeting of the winter season, held the night of September 14, Dr. H. G. Merrill was the principal speaker. The doctor discussed his experiences as a delegate to the Rotary International Convention held at Ostend, Belgium, the past summer. He also gave some sidelights on the medical centers of Europe, a number of which he visited during his time abroad. Dr. F. D. Worlton of Lehi, Utah, also spoke on his trip to Europe which he had recently made as a member of the Interstate Tours party. The remarks of both members were of decided interest. Business meeting followed the addresses.

September 28, Dr. T. W. Hasler gave a résumé of his trip to Denver at the time of the E. E. N. and T. meeting in that city. The doctor spoke in more extended fashion upon matters relating to his specialty. His remarks were generally enjoyed.

October 12, Dr. B. E. Bonar of Salt Lake gave the principal paper, his subject being "Diagnosis and Treatment of Pneumonia in Children." The doctor gave a complete résumé of symptomatology and a comprehensive outline of the technique of handling children during the course of this disease. His paper was of timely and scientific interest and was much enjoyed.

ARNOLD E. ROBISON, *Secretary*.

Medical Charity in the Philippine Islands—The Committee on Free Public Dispensaries of the Philippine Island Medical Society brought in the following recommendations:

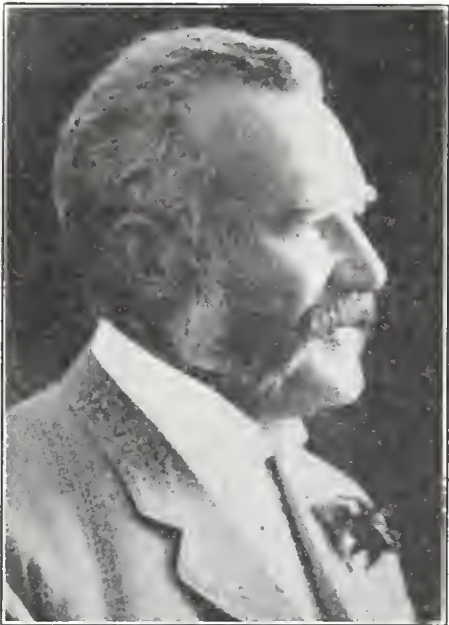
1. That the people of the Philippine Islands be classified yearly into nonindigent and indigent poor.
2. That promulgation of ordinances in all municipalities, resolutions by provincial boards, circulars or orders by department secretaries concerned enforcing the indigence system in the Philippines be recommended.
3. That indigence cards be issued to all indigent persons by the municipal secretaries or their representatives.
4. That all persons to whom these cards are issued be admitted or treated in all Government dispensaries and hospitals free of charge.
5. That penalties for the misuse or falsification of indigence cards be recommended.
6. That the limit of income for indigent persons be P 100.00 per month for single persons, or for married persons after deductions for their children as per income tax ruling have been made.
7. That the provisions of the Administrative Code, Sections 869, 1006 (i), 1031 and 1032 (Act No. 2711), which entitle all Government employees, irrespective of their salaries, to free medical service, be repealed.
8. That a permanent committee to continue this work on public dispensaries and to recommend further necessary legislation be appointed.—*J. of the Philippine Islands Med. Assoc.*

NEVADA STATE MEDICAL ASSOCIATION

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Submitted for the Committee on Necrology for the twenty-fourth annual meeting of the Nevada State Medical Association, Reno, Nevada, September 23 and 24, 1927.

OBITUARY



SIMEON LEMUEL LEE

The subject of this obituary, Simeon Lemuel Lee, M. D., was born near Shobonier, Fayette County, Illinois, on September 4, 1844, and died at Carson City, Nevada, January 12, 1927.

Doctor Lee was one of the most distinctive characters of Nevada. No Nevadan was ever better known throughout this vast section of the West.

The place of Doctor Lee's birth in southeastern Illinois is Illinois' historic spot. His great-grandfather, William Lee, with his family, moved into that section in 1815, and in 1849 was lured across the western plains en route to the California gold-fields, but died of cholera near the present city of Cheyenne, Wyoming.

Doctor Lee's ancestors came directly from good-blooded English stock. The ancestral tree dates from the name of Sir Walter Lee of Cheshire, Parish of Widenbury, England, in "36 year of King Edward ye 3."

The King Edward referred to was born in 1312 and died in 1377 after a reign of fifty-one years. As a point of medical interest it was under the reign of this King in 1349 that the black death, as it was then called, now known as the bubonic plague, swept away one-third of the total population of England and completely revolutionized the social and political character of the country. There is a monument to this plague just outside the tower gate of Winchester which the writer frequently visited and which was seen by thousands of American soldiers in the World War.

The Lee family emigrated to America, some settling in Ipswich, Connecticut, in 1632, and other members coming later and settling on the James River, Virginia, in 1641.

Doctor Lee's early education was obtained in the public schools at Vandalia, Illinois, then a flourish-

ing pioneer town, and a former capital. The opportunity for education was above the average in Vandalia even in those early days, by reason of the fact that the old capital town still contained some eminently respectable and well-educated people.

Doctor Lee's early life was spent on his father's farm, his father being a landowner and a prosperous farmer.

When Doctor Lee had just passed his nineteenth year he enlisted in the Union Army and was sent to join the Federal forces at Vicksburg. He enlisted in the Eighth Illinois Volunteer Infantry and was under the command of General Grant, who a few months prior had captured that city from the Confederate General, Pemberton. Remaining at Vicksburg a short while, he went through Mississippi under General Sherman. Then he was ordered to Du Vall's Bluff, Arkansas, under General Canby. In September, 1864, he was made a sergeant. Then he was sent to New Orleans, and from there to Mobile. It was at the outpost near Mobile, the last defense of that well-fortified city, where he was promoted to a first sergeant, and shortly afterward was made a second lieutenant. At the fierce fight at Blakely, his company consisting of thirty-five men, one-half of his men were killed or wounded. From Mobile he was ordered to Shreveport, Louisiana, thence to Marshall, Texas, and finally again to New Orleans, where he was mustered out in June, 1866.

The fighting seen by Doctor Lee was arduous and bloody, where casualties were always one-third of those engaged, and Croix de Guerre decorations were never dreamed of.

Following his muster out from the army, the following September he entered the Physico-Medical Institute at Cincinnati and graduated from that institution with the degree of M. D. in February, 1870. He returned to Illinois and made his maiden effort in practice at Louisville, Clay County, remaining there till October of 1870, when he took the westward trek coming to Carson City, Nevada, late in the same month and established a practice in the capital of the state.

After being in Carson City for two years, the lure of the big mining camp at Pioche, in the east side of the state, attracted him to that town. This was in 1872. At that time Pioche was a town of six thousand people, and through the Meadow Valley Mining Company and the Raymond and Ely Mining Company had already produced over \$16,000,000 in silver alone. Pioche gave great promise of a second Comstock Lode, but the boom died, and after a residence of five years Doctor Lee left Pioche and took up his residence at Eureka, Nevada, at that time the dominating lead market of the whole world.

As a general practitioner—for he did surgery as well as internal medicine and obstetrics—Doctor Lee was a man of good judgment and ability. I doubt if any of the early pioneer physicians had a larger or more successful practice than he. Among the incidents of his professional life that mark the man as a true devotee of medicine were two that are worthy of note. The first is of a trip taken by him to the opposite side of Lake Tahoe to attend a woman in labor in the depths of winter. I am informed that Truckee was called for medical help, but refused to go. Doctor Lee volunteered. He was driven by team as far up in the Sierras as it was possible to go, then he put on snow-shoes for the first time in his life. The driver who brought him up to the farthest point where a horse could travel, entreated the doctor not to continue as the canyons were deep with snow and all traces of a road were obliterated. Nothing daunted, Doctor Lee went. He plodded his weary and dangerous way hour after hour, frequently sinking deep into the treacherous snow depths, but finally came out to Lake Tahoe. He had to cross Lake Tahoe. Captain Pomin, now deceased but well known to thousands of the Lake tourists, refused to take Doctor Lee across, pointing out the extreme danger of the undertaking. But Doctor Lee showed him a written order he had secured long before whereby, in case

of emergency, Doctor Lee was to have possession of the boat. This settled the point and the two men made the dangerous trip across the lake safely. The accouchement was safely done and mother and child saved.

The other incident was somewhat similar and equally dangerous. In this instance Doctor Lee braved the perils of the deep mountain snows and went to the aid of a woman dying of pneumonia, but too late to save her. When it is remembered that the mountain passes were nearly 7000 feet above sea level, and all the canyons were filled with snow scores of feet deep, that the trail led alongside of places where one misstep meant sure death in the deep canyons below, those who read of these heroic acts of courage and supreme devotion to duty done in the interest of suffering humanity, must feel they are equally as heroic as any done upon the field of battle. I am sure that every physician feels that his professional duty is as direct as was that of those who made the great charge at Balaklava, "Theirs not to reason why, Theirs but to do and die."

Doctor Lee was an energetic man in social and political affairs. As a Master Mason, he was prominently identified with Masonry in Nevada and California. He was a member of the De Witt Clinton Commandery of Reno and a member of the Islam Shrine Temple of San Francisco.

Professionally, in a public capacity, Doctor Lee was member and secretary of the Nevada State Board of Health and State Board of Medical Examiners from the inception of the same in 1911 up till his death. He was also appointed to the honorary post of Surgeon-General of the state during the administration of Governor Oddie.

Doctor Lee's great hobby was gathering rare collections. These collections included one of the very finest assortment of Indian basketry and Indian arrows and flints to be found in the United States.

His collections also included a fine assortment of rare ceramics, stamps, money, and a complete collection of geologic and semiprecious stones from Nevada and the surrounding states.

It has been said that the original cost to Doctor Lee for these rare collections was over \$50,000. As a citizen of Nevada, I strongly endorse that the state purchase this rare collection and keep it in the new State Building as a perpetual source of education to all interested in this feature of study.

During the World War, Doctor Lee was chairman of the Ormsby County Committee to raise funds for the liberty loans. He had often remarked to the writer that the county which, figuratively speaking, could have been covered with a blanket, and which did not contain more than 2000 people, under his energetic endeavor, raised over three-quarters of a million dollars to carry on the war.

Doctor Lee was married to Miss Lola Montez Watts at Flora, Illinois, November 26, 1868. To this union three sons were born, all of whom died in early adult manhood. One son, Adelbert Watts Lee, M. D., was a graduate of the Medical Department of the University of California. At the time of his death, on October 17, 1921, of appendicitis, he was occupying the chair of Dermatology in his Alma Mater.

On Wednesday, January 12 of this year, the last leaf of the ledger of Doctor Lee's life was turned. His death caused a great sorrow among his thousands of close friends. He closed a long active medical career of fifty-six years, all with the exception of a few months in the state of his adoption. On the following Sunday a body of his old friends followed his remains to the little cemetery, and as the volley-firing ceased, the silvery bugle pealed out the farewell notes for the soldier-physician. The flower-laden casket passed from view, and while Mother Earth claimed her own, the spirit immortal had passed on before to join those of his family who we all feel have joined that celestial life in which sorrow and parting are no more.

THOMAS W. BATH, M. D.

MISCELLANY

From time to time in this department of California and Western Medicine, appear columns grouped under the following headings: Comment on Current and Recent Articles in this Journal; History of Medicine; News; Medical Economics; Readers' Forum; California State Board of Health; and California Board of Medical Examiners. For Book Reviews, see index on the front cover, under Miscellany.

CURRENT COMMENT

THE POORE'S PLAGUE AND MR. PEPYS *

Being excerpts from an article by G. R. Owen, M. D., Los Angeles, in *Annals of Medical History*, Vol. III, No. 3.

"... At the beginning of London's great plague of 1665, Samuel Pepys was thirty-three years of age. With four exceptions bubonic plague had been known in London every year since 1603. The 'Long Visitation' of 1640-47 occurred during his adolescence, that period of interrogation, when doubtless, in answer to his countless questions, he was regaled by the oldsters of his family with gruesome tales of the very considerable epidemic of 1625. He, having been about eighteen at the end of the 'Long Visitation' and of an extremely acquisitive and curious turn of mind, had in all probability made some personal contacts with the sick and recovered. . . .

* * *

"... I was much troubled today to see a dead man floating upon the waters, and had done (they say) these four days, and nobody takes him up to bury him, which is very barbarous' (April 6, 1662). 'This entry is a pregnant introduction to a consideration of the sanitary conscience of the ancient city. . . .'

"... Householders were responsible for the sweeping of the public streets to the extent of their own frontage, the piles of refuse thus accumulated to be taken up by the 'rakers' and deposited on the various and putrid laystalls, huge piles of rotting refuse. Long Ditch, the Fleet, and the numerous streams draining the city and town were but open sewers over which 'houses-of-office' were erected, and into which honest citizens leaning from their projecting casements naively deposited the contents of their chamber-pots. . . .

* * *

"... From November 26, 1663, to August 4, 1664, we find frequent references in the Diary to the plague among the Dutch: 'The plague, it seems, grows more and more at Amsterdam: and we are going upon making of all ships coming from there or any other infected places to perform their quarantine (for thirty days), a thing never done by us before.' (November 26, 1663). . . .

"... Our chronicler's first reference to the actual epidemic appears on May 24, 1665, and indicates the inevitable reactions to a calamity of this type. . . .

"... Thence to the coffee-house (that sixteenth century prototype of the hot-stove league), and heard of the plague growing upon us in this town; and of the remedies against it, some saying one thing, some another. . . .'

"... On the twenty-eighth of August, Pepys, depressed by the silent streets occupied by only the pathetic few 'looking like people that had taken leave of the world,' decided to close his house and join his wife at Woolwich, his offices having been previously removed to Deptford. 'Thus I think to take leave of the London streets' (August 28, 1665). 'Up, and after putting several things in order to my removal to Woolwich, the plague having a great increase this week . . . the plague above 6000. Thus this month

* Editor's Note: These quotations are printed in this "Current Comment" column of California and Western Medicine because the reviews of the bubonic plague in America and California, in the twentieth century, on other pages of this issue, make these sidelights on the plague in England in the seventeenth century, almost four hundred years ago, of interest.

ends with great sadness upon the publick . . . every day sadder and sadder' . . . (August 31, 1665).

"... Corpses lay piled in the fields like faggots until such time as they could be thrown indiscriminately, hurriedly and uncoffined into the common graves, as disclosed by recent excavations of old pits. In 'God's Terrible Voice in the City,' Vincent says: 'Multitudes! Multitudes! in the valley of the shadow of death, thronging daily into eternity. The churchyards are now stuffed so full with dead corpses that they are in many places swelled two and three feet higher than they were before, and new ground is broken up to bury the dead. . . .'

* * *

"... I have stayed in the city until above 7400 died in one week, and of them above six thousand of the plague, and little noise, heard day or night but tolling of bells; till I could walk Lumber Street and not meet twenty persons from one end to another, and not above fifty upon the Exchange; till whole families, ten or twelve together, have been swept away; till my very physician, Dr. Burnett, who undertook to secure me against the infection, having survived the month of his own house being shut up, died himself of the plague; till the nights though much lengthened, are grown too short to conceal the burials of those that died the day before, people being thereby constrained to borrow daylight for that service; lastly till I could find neither meat nor drink safe, the butcheries being everywhere visited, my brewer's house shut up, and my baker with his whole family dead of the plague. Yet, Madam, through God's blessing, your poor servant is in a perfect state of health.'

* * *

"On the seventh, he 'sent for the Weekly bill . . . 6978 of the plague.' One thousand a day! In desperation fires were ordered burned in the streets, one at every twelfth house: 'Thence by water . . . all the way fires on each side of the Thames.' In the week that the fires burned came the first decrease since the inception of the illness four months previously—acorns ago to the unhappy people: 'the decrease of 500 and more, which is the first decrease we have yet had in the sickness since it begun. . . .'

"... Thus ends the depressing chronicles of that drear and drab September. Twenty-six thousand, six hundred and fifty-two victims of the pestilence. Victims duly registered by overworked clerks and sextons. Heaven only knows how many went unnoticed to the pits. With the turning leaves of October's cool autumn days came a steady decrease in mortality. Infections were many, but the virulence was attenuated. . . .

* * *

"... Stimulated by the returning clatter of the filling town he does 'resolve to remove home soon, as we know how the plague goes this week.' The month closed 'with but 333 of the plague' (November 30, 1665). . . .

"... From thence on occurred an occasional flurry in the weekly bill, with expressed apprehension that there might occur the dreaded hot-weather increase. Not so, however, for which our diarist piously thanks God. Two hundred and twenty-two of plague in February, and 107 in March. . . .

* * *

"... Though plague deaths occurred for some weeks after November 20, 1666, that day marks the official ending of the Great Plague and our story thereof.

"And then to church, it being thanksgiving-day for the cessation of the plague, but Lord! how the

towns do say that it is hastened before the plague is quite over, there dying some people still, but only to get ground for plays to be publicly acted, which the Bishops would not suffer till the plague was over.'

* * *

"Two centuries passed before the Victorian era, when the radiance of the immortal Pasteur dispelled the Egyptian darkness of the centuries. Until then the civilized world knew little more of epidemiology than did Pepys and his world. . . .

* * *

". . . We have already shown that they recognized the danger of public gatherings; the necessity of fumigating infected houses, and the burning of infected bedding. They had a fair conception of quarantine, and vague ideas upon the danger of 'vermin,' the accumulation of filth and climatic influences. So had they a knowledge of all these things at the time of 'the plague of Thucydides,' some 400 years B. C. Even the building of fires in the streets was practiced in Athens during that epidemic. . . .

* * *

". . . Not until 1894 did Kitasato discover the *Bacillus pestis*, and several more years were to pass before the rat and its parasitic flea were to be indicted and convicted. . . ."

THE 1924 LOS ANGELES PLAGUE EPIDEMIC

The following comments in relation to the bubonic and pneumonic plague, outbreak in Los Angeles of October, 1924, were originally written with the intention of printing them under the "Medical Economics" column of this journal, but their length and nature led to the decision to give them a different title and print them in the "Current Comments" column of CALIFORNIA AND WESTERN MEDICINE.

The subject discussed made it desirable for a number of reasons that California physicians should be informed in the pages of the official journal of the California Medical Association, concerning the nature and scope of the Los Angeles epidemic of 1924. Up to this time the only official information thereon is that which appeared in the annual report of the California State Board of Health, to which only a very few members of the medical profession have easy access.

* * *

Medical Economics has especially to do with the economics of physicians in relation to the practice of their profession, and to their business relationships with patients.

It may also indirectly have to do with the economics of lay citizens and of communities, in relation to the acceptance by the lay public, of health measures which if or if not put into operation in our age of population growth and of intensive material civilization, may mean a gain or loss to the citizens of a metropolitan city, of sums running into hundreds of thousands of dollars.

* * *

We have seen no figures of the indirect money loss to the city of San Francisco at the time of its plague outbreak some twenty-five years ago, to which reference is made elsewhere in this issue of CALIFORNIA AND WESTERN MEDICINE, but the loss to the business interests of that city at that time must have run into the millions of dollars.

The citizens of San Francisco raised among themselves a fund running into thousands of dollars to supplement the activities of federal, state and local health authorities, and it was money from these private sources that made possible investigations among ground squirrels outside of San Francisco City and County, by means of which the ground squirrel population of adjacent counties was shown to be infected by the *Bacillus pestis*.

* * *

In the October, 1924, plague epidemic in Los Angeles, for plague eradication work, the city spent

\$275,000, the county \$95,000, the state \$10,000 or a total of \$380,000. In addition the citizens of Los Angeles spent \$2,000,000 in complying with emergency rat-proofing ordinances. These figures are from the report of the California State Board of Health. The United States Public Health Service also has spent very considerable sums in the work.

An estimate of fifteen millions of dollars was placed on the money loss to Los Angeles citizens, resulting from that brief plague outbreak in southern California.

* * *

For more than a year now, a special committee of the Los Angeles County Medical Association has been at work seeking to secure the passage of a rat-proofing building ordinance. Its efforts, as well as those of civic bodies, have at the time this is written not gotten the proposed ordinance out of committee of the Los Angeles City Council.

The proposed statute is a non-retroactive building ordinance, the two major demands of which are: (1) that every new building shall have a rat-proof foundation at least 18 inches beneath the ground (rats do not burrow deeper than that for shelter or food); and (2) that all buildings in which foods are stored (food depots) shall have a cement rat-proof floor on the first floor.

At the time of this writing, Los Angeles is without any rat-proofing building ordinance, the emergency rat-proofing ordinances which were gladly passed when the scare was on having been repealed by the former Council, upon the advice of the building commission, the health commission of the city not having been consulted in the matter!

Of course if a recurrence of the plague took place today the emergency rat-proofing ordinances would again be immediately voted through. In the absence of an immediate menace, however, it is easy to procrastinate and argue, both as to the efficacy and the necessity of the measures proposed. That is human nature. But human nature and its frailties do not absolve the medical profession from doing its part, and it owes it to itself to go on record in pointing out to the people and their legislators what presumably should be done, in view of the facts and issues which are at stake.

* * *

With the hoof and mouth disease, and also with the bubonic plague, California agreed that it was desirable not to overemphasize publicity at the time of the epidemic. However, since the last human case in southern California was at Los Angeles and of date of January 11, 1925, practically three years ago, it is surely admissible in the official medical journal of the state to quote from the twenty-ninth annual report of the California State Board of Health of date of June 30, 1926. The licensed physicians of California have a right to know what took place in 1924, for their effective cooperation in this and other dangerous epidemics in the future must of necessity rest on facts rather than on speculation.

* * *

We shall therefore quote briefly concerning the cases, as taken from the state board report:

". . . On October 19, 1924, Lucena Samarano, a Mexican woman living at 742 Clara Street, Los Angeles, California, died after an illness of four days. An autopsy was not held, as no unusual interest was attached to the death. This woman lived with her husband and family at the above address, where she maintained a rooming and boarding-house.

"On October 22, 1924, this woman's husband, Guadalupe Samarano, and Jessie Flores, a practical nurse who nursed Lucena Samarano, were taken ill, the latter dying at her home, 741 Clara Street, the former dying in the Los Angeles General Hospital. An autopsy was held on Guadalupe Samarano, and the cause of death was given as double lobar pneumonia.

"Up to October 24 there was no reason to suspect pneumonic plague. A few days following the death of the husband and nurse, the Los Angeles City Health Department and the Los Angeles General Hospital received a call, stating that a number of Mexicans in the Mexican quarter—the Macy Street district in Los Angeles, and the Belvedere district in county territory—were desperately ill. The physician who sent in the call stated that these patients were critically ill of some malady which he could not definitely diagnose, but which he thought might be highly contagious, since several others in the neigh-

borhood were similarly affected, namely, with high fever, pain in the back and chest, and expectorating a profuse bloody sputum.

"The resident physician of the Los Angeles General Hospital answered the call in the Belvedere district. Here he found an old Mexican woman crying between paroxysms of coughing, and a Mexican man restless and feverish. Through the aid of an interpreter, it was learned that these patients were stricken the day previous with a severe pain in the front of the chest and along the entire spine, a few reddish spots on the chest, and with a temperature of 104.

"The interpreter led the physician to a nearby home, where a young man and his wife and a young girl were found suffering with symptoms similar to those of the other cases. (Three days later the man was dead and the two women dying in the Los Angeles General Hospital.) The interpreter remarked that four other boys, relatives of these patients, were also ill at their home, and that the father (Guadalupe Samarano) of the young men above referred to had died in the hospital the week previous of what was thought to be pneumonia.

"The medical inspector of the Los Angeles City Health Department found similar conditions to exist in the homes visited by him in the Macy Street district. All of these patients were hospitalized. By October 28, 1924, eighteen patients, friends and relatives of Lucena Samarano, were admitted to the hospital. They all developed signs of severe pneumonia, with profuse blood expectoration and marked cyanosis, all dying after an illness averaging four days.

"On October 31, 1924, an autopsy was held on Horace Guiterrez, one of the above patients. Smears from the lungs of this patient showed gram negative bipolar staining bacilli, characteristic of plague. Sections of the lungs confirmed the diagnosis of pneumonic plague. The diagnosis of pneumonic plague having been established in this case, sections were then made from the lungs of Guadalupe Samarano, in which plague was proven.

"On October 31, the day plague was diagnosed, Mary Costello, the nurse who cared for Guadalupe Samarano, the priest who administered the last rites, and the ambulance attendant who moved him to the hospital, all contracted the disease. The former recovered and the latter two died.

"In all, there were thirty-two cases of pneumonic plague in this epidemic, of which thirty terminated fatally. There were ten persons living at the Samarano home at 742 Clara Street. Sixteen relatives and friends who visited the home during the illness of the first patient also developed pneumonic plague. Other contacts to develop the disease were the nurse, a Spanish priest, and the ambulance attendant. One case was not definitely traced. This patient was in articulo mortis at the time of admission to the hospital, and his friends could throw no light upon his whereabouts before being taken ill. . . .

". . . So far as we have been able to ascertain, pneumonic epidemics have arisen as the result of earlier bubonic infections. . . .

". . . In all, there were seven cases of bubonic plague in Los Angeles between October 24, 1924, and January 11, 1925. The symptoms were not to be distinguished from other cases of bubonic plague, but there are certain facts of particular interest. . . .

". . . Early in the investigation it was learned from reliable sources that an epizootic of some nature had occurred among the rats in the district where plague first made its appearance. As evidence that such an epizootic did occur, it may be mentioned again that the first rat to be proven plague-infected was found in a dying condition in a grocery store one block from where the first human case occurred. Also that the address where two cases of bubonic plague occurred is only a few blocks separated from the first focus of human and rodent plague, and dead rats were found beneath the floor of the home where the Anderson Street cases occurred. . . .

". . . The study of our investigation leads us to the conclusion that the pneumonic epidemic was preceded by an epizootic among the rats some few weeks before the epidemic; that the first case of human plague to occur in the district was of bubonic type; that the pneumonic and the scattered bubonic cases were all of rat origin. We are reminded 'that rat fleas may be attracted to man, jump on him, but take some time to feed on him. This last observation is of importance in connection with the question of importation of infected fleas from place to place.' We are also of the opinion that in Los Angeles City and County the rat epizootic preceded and was accountable for the plague infection among the ground squirrels. . . .

". . . On November 3, 1924, a meeting was held at the office of the mayor of Los Angeles. This meeting was attended by representatives of the federal, state and local health departments and business men of the community. All plague control work was placed under the direction of the secretary of the California State Board of Health.

"The following plan of operations was agreed upon and placed in operation:

"1. Strict quarantine of all areas where plague cases had occurred or might occur.

"2. Segregation of the inhabitants of these districts and prevention of the gathering of groups of people.

"3. A daily house-to-house inspection within the quarantined areas.

"4. Hospitalization of all known contacts with pneumonic cases and hospitalization of all cases of illness found within the quarantined areas.

"5. The examination of all dead bodies by physicians, and autopsies by the pathologist at the Los Angeles Gen-

eral Hospital, on all cases dying of unknown causes or in which a diagnosis had not been definitely established.

"6. The establishment of a bacteriological laboratory for exclusive examination for rodent and human plague.

"7. A special force of men for widespread trapping, poisoning, and rat-proofing of buildings.

"8. The disinfection of premises by petroleum spray.

"9. The tagging of all rats, mice, and squirrels collected, so the locations of any infected rodent would be known and the progress of infection mapped out; and the tagging and special marking of all rodents from the harbor district.

"10. The proper disposal of garbage and the separation of the rat from his food supply.

"11. Eradication of ground squirrels under the direction of the county horticultural commissioner, who had an efficient and well-organized department of rodent control. . . ."

More might be quoted, and an interesting story of the initial diagnosis made could be presented, but of that, perhaps, in a subsequent issue.

* * *

Much of the discussion in Los Angeles has seemingly hinged on the efficacy of rat-proofing the buildings versus catching the rats, and as to which of the two methods was the more logical and important measure in bubonic plague prevention.

On that account a letter from the chief of the United States Bureau of Biological Survey may be of value at this time; and also be worthy of printed record for service in the future. It may be added that the bulletins referred to in this letter favor rat-proofing measures as of paramount importance.

The letter referred to is as follows:

September 28, 1927.

Dear Doctor Kress:

Your letter of September 13 is received. The further information concerning rat-proofing, referred to in our Farmers' Bulletin No. 1533, is supplied through reprints numbered 620 and 655 of the Public Health Reports, copies of which you undoubtedly have.

This indicates that we are in full accord with the substance of the rat-proofing program advocated in the reports and also with your tentative draft of a rat-proof building ordinance for Los Angeles, inasmuch as it is apparently closely patterned after the model ordinance contained in reprint No. 620. It appears, however, that your section number 7 fails to take care of a common situation favorable to rat infestation in that it allows the construction of a ground floor in Class 2 buildings at any convenient distance from the ground level. This often provides, particularly in warmer climates, an enclosed space, too shallow to be accessible and an ideal harbor and breeding place for rats. It is true, of course, that rats are supposedly shut off from such space by the provisions of the ordinance, but the number of cases in which they do succeed in reaching such places is remarkable. Once having gained access to a dead space of this kind they are exceedingly difficult to control.

From a purely rat-riddance viewpoint, Class 2 buildings would be more effectively rat proof if they should be required to either meet the provisions of Class 1 buildings and have a full basement or be set upon pillars as your ordinance provides. If this would be considered too drastic, the ordinance, in our opinion, would be strengthened by providing that in no case should a wooden floor be constructed less than 18 inches from the ground level, and that means of access to the intervening space be provided. This might seem a minor point, but our experience has indicated that rats are far less likely to establish permanent residence in a space of proportions capable of admitting its natural enemies, and that also rats are much more easily controlled in available situations.

It also occurs to us that your Section 8, providing for closure of wall spaces, might better require that they be closed with cement mortar or other "non-combustible materials impervious to rats." It would also seem desirable that it be made plain that the ordinance apply to buildings to be constructed or altered after the passage of the ordinance.

We have found that a heavy infestation of rats often occurs in buildings which apparently meet all of the requirements of your tentative ordinance, but which provide ample rat shelter on the inside in the form of built-in fixtures, such as platforms, shelves, furnaces, machinery, etc. While your Section 8 might cover miscellaneous details of these kinds, it would seem desirable to definitely provide that such built-in fixtures be approved as rat-proof by the building commission.

It might also be advisable, from the standpoint of overcoming opposition to the ordinance, to provide for some exceptions such as in the case of portable and temporary buildings, open lumber and machinery sheds with dirt floors, and other buildings not offering serious menace to the rat situation.

In considering the rat control problem in cities in a general way, it has been our observation that any methods which do not strike at the sources of the trouble should be discarded at the outset. The actual destruction of rats by poisoning or other means would require large and continuous expenditure and would result in no permanent benefit. On the other hand, any measure which tends to permanently reduce the food supply and harbors of the rat automatically cuts the rat population in pro-

portion to the thoroughness with which such measure is carried out.

We also feel that inasmuch as most modern buildings now conform to your proposed building requirements, except in minor details, that such an ordinance would meet with slight opposition in comparison to the drastic anti-rat regulations now being enforced in other countries. We can, therefore, see no good reason why all future buildings in Los Angeles should not be made rat-proof under the requirements of a rat-proof building ordinance.

The effects of such an ordinance would not be apparent for a long period, but the ultimate results can be visualized by considering what the present situation would be had such an ordinance gone into effect fifty years ago. In addition to having a comparatively rat-proof city, the average structure of the city would be considerably above what it now is.

In addition to requirements enforceable by the building commission we feel that there are certain sanitary measures that are of equal importance in controlling rats in a city. These, of course, are concerned with the prevention of accumulations of garbage, rubbish, waste, refuse, and other filth that might afford food or shelter for rats either in buildings or upon any premises, yards, open lots, alleys, streets, or public places. They should also provide that all garbage shall be placed in tight metal receptacles with close-fitting covers. Provision should, of course, be made for the adequate collection of such garbage and other refuse at sufficiently frequent intervals to prevent overflow, and for the disposal of such waste in such a manner and place so that the disposal plant will not serve as an incubator for rats.

Other than the foregoing it is our opinion that rat control in a large city would benefit by the services of a rat inspector or officer whose duty it would be to carry on a constant campaign of instruction in rat control methods, stimulate public interest in rat control, investigate conditions favoring rat infestation, recommend methods of removing the most menacing sources of rats, and advise individuals and organizations generally in regard to rat-proofing repair of buildings and other control measures.

The Biological Survey has developed and accumulated a vast amount of information concerning methods of destroying rats, and in connection with carrying on educational campaigns for their control would be glad to cooperate with such a rat officer or with any organizations in the city of Los Angeles to whom it can be of service.

Very truly yours,

W. C. HENDERSON,
Acting Chief.

* * *

There is little more to be said. In view of the facts just presented, it certainly would seem reasonable to conclude that a metropolitan center such as Los Angeles with its vast local and port material interests and grave public health obligations would not hesitate to place on its statute books a rat-proofing ordinance of so simple and fair a character as that outlined; and which has the endorsements of federal, county, and city public health officials, of state and county medical societies, and of civic bodies such as the Chamber of Commerce and the Community Development Association.

More than a year of deliberation by the law-makers in two city councils would warrant the conclusion that this serious matter has had ample time for consideration so as to prevent hasty or ill-advised action. The prevention of bubonic plague should not be a matter for speculation or theorizing. Ultimately the advice of someone must be followed. It would seem reasonable to assume that the medical and lay endorsers of the proposed ordinance are of sufficient character and knowledge in the community to be worthy of the responsibility for giving sane, practical and scientific advice. Its sponsors hope that the proposed ordinance will come out of committee and go to passage at an early day.

* * *

For those who think that the bubonic plague is altogether a thing of the past in California, it may be of interest to know that in Los Angeles rats dying of bubonic plague, as proven bacteriologically, by animal inoculation and by culture tests, were demonstrated in December, 1926, in January, 1927, and in March, 1927.

Also that in Contra Costa County on July 10, 1927, a human being died of bubonic plague; and the health inspector demonstrated bubonic plague to exist among a number of ground squirrels which were captured in that district.

All of which should give reason for some serious contemplation by all who are tempted to think that this danger is altogether one of the past. For such is not the case.

G. H. K.

NEWS

The College of Medical Evangelists of Los Angeles—Its Cosmopolitan Student Body and Its High Standing and Unusual Record—The College of Medical Evangelists, located in southern California (the work of the first two years at Loma Linda, near Redlands, and that of the last two years at Los Angeles), is unique in many ways.

It is owned and financed by a small evangelical denomination (Seventh Day Adventist) with the express object, as implied in its name, of preparing scientific doctors of medicine to devote unselfishly their lives to bettering the lot of the millions of men and women in non-Christian lands who so sadly need medical care. That this is a most altruistic and laudable purpose will be readily admitted. In fact it is the only school teaching scientific medicine in the United States emphasizing those phases of the life of the Great Physician concerning the healing art.

The graduates of the College of Medical Evangelists are to be found scattered all over the world. They are at work in the vast territories of China, from the borders of Tibet to the Yellow Sea. Numbers of them who might be living in their homeland in comfort and affluence are burying their lives in the furrow of earth's need in remote districts of the great empire of India. They are to be found dotting the but little known fastnesses of the Dark Continent of Africa, on the utmost borders of civilization, and in this way treading in the footsteps of the great Dr. David Livingstone, who so nobly gave his wondrous life for the dusky sons and daughters of that then unexplored land.

It is interesting to note that more students from overseas attend the College of Medical Evangelists than come to any other college of medicine in this country. In the roster of its student body it registers men and women from India, Africa, Australia, New Zealand, China, Japan, and the islands of the seas. The last statistics published by the Council on Medical Education show thirty-nine students from foreign shores at present attending this school, almost double that of its nearest competitor in the United States in this respect, the numbers in all the others being quite insignificant.

In the matter of attendance it is far from being a small institution, having admitted to its freshman class this year 114 students, and having a total enrollment of 372.

There are only approximately twelve medical schools in our country which require the intern year, withholding the degree of Doctor of Medicine until the fifth or intern year has been completed. The College of Medical Evangelists, along with the medical schools of the Universities of California and Stanford, is one of this group of pioneers in this move for better and more thorough training of our doctors.

While the College of Medical Evangelists is not a part of or connected with any great university, it has nevertheless accomplished some quite well worthwhile achievements.

It sends more of its men to take the Triple Qualification Board of Scotland, which admits those holding its certificate to practice anywhere within the confines of the British Empire than any other medical college in the United States.

It is the pioneer and only medical college in the United States that has adopted and successfully carried forward what is known as the "cooperative plan of education," made famous by the School of Engineering of the University of Cincinnati and Antioch College, Ohio. In a way this plan is a revival of the old "preceptor method" of medical teaching concerning which so much has been said and written of late. The students, during their freshman and sophomore courses, are in school during practically the entire year. They are divided into two sections of equal size. While one section is pursuing its medical studies in the school the members of the other are obtaining a practical experience in the more humble duties of the

healing art in hospitals, dispensaries, clinics, and physicians' offices scattered throughout the state.

Recently one of its graduates took first place on Part II of the National Board of Medical Examiners, and was followed shortly after by another who took second place, while its record on the California State Board has been very creditable.

Officers of Pacific Coast Association of Railway Surgeons—The twenty-fifth annual meeting of the Pacific Association of Railway Surgeons was held at the Hotel Biltmore, Los Angeles, August 26 and 27. There were morning sessions and afternoon recreation. A barbecue was tendered by the Los Angeles committee on Friday evening at the Uplifters Grove, Santa Monica.

The following officers were elected for the ensuing year: Dr. E. G. Goodrich, Los Angeles, president; Dr. R. L. Ramey, El Paso, first vice-president; Dr. Philip Stephens, Los Angeles, second vice-president; Dr. C. A. Walker, San Francisco, treasurer; Dr. W. T. Cummins, San Francisco, secretary. The president appointed the following executive committee: Dr. G. S. Hall, Los Angeles; Dr. Henry Abraham, San Francisco; Dr. W. B. Bowman, Los Angeles; Dr. E. N. Greenwood, San Francisco.

University of California Medical School—James Montrose Duncan Olmsted, Ph.D., has been appointed associate professor of physiology at the University of California, and will take up his work next year. Professor Olmsted was a Rhodes scholar at Oxford from 1908 to 1911, receiving his Ph. D. degree from Harvard in 1920. He was associate in physiology at the University of Illinois College of Medicine in 1920, and from there went to the University of Toronto as assisting professor.—*Bulletin of the Association of American Medical Colleges*.

University of California Medical School—The National Research Council has awarded a grant of \$15,880 to the university to support investigations being made by Dr. Herbert M. Evans, department of anatomy, with particular reference to the relation of nutrition to fertility and the relation of the endocrine glands.

Dr. Herbert M. Evans of the department of anatomy, University of California Medical School, has been elected a member of the National Academy of Sciences.—*Bulletin of the Association of American Medical Colleges*.

Dr. Rudolph Matas, retiring professor of surgery at Tulane University, was made an Honorary Fellow of the Royal College of Surgeons in England on the occasion of the celebration of the Lister Centennial, April 5, 1927.—*Bulletin of the Association of American Medical Colleges*.

"Polio" Still Spreading in Ohio—Ohio is experiencing the greatest outbreak of poliomyelitis in its history. At the closing hour, October 1, 1927, there had been reported 750 cases of which, it is reported from various sources, sixty-nine had died.

Continuing warm weather undoubtedly has helped maintain the case rate and spread of the disease. The hot September days added "millions of dollars to the value of the corn crop," but at the probable expense of eight children per day who will remain more or less permanently crippled for life. If our theories are correct, not for ten days after killing frosts arrive will be permanent decline in cases set in. In the meantime it behooves all health authorities to exert their best efforts at recognition and quarantine of mild cases.—*Ohio Health News*.

The Pondville Cancer Hospital at Norfolk, Massachusetts, was created under authority of the legislature for the care of patients suffering from cancer under the administration of the State Department of Public Health and is one of the first institutions of this kind in this country. It is located in the town-

ship of Norfolk on the Boston-Providence Turnpike between Walpole and Wrentham. The hospital is now equipped to give full operative, x-ray, and radium service. While all types of cancer cases will be admitted, it is desirable, owing to the size of the hospital and the heavy cost at which it is being operated, that a large per cent of patients be of the type that can be benefited by our resources. The cases needing only custodial care will be admitted only if adequate care cannot be obtained elsewhere.—*Boston M. and S. Journal*.

Changes in Regulations Covering Liquor Permits and Prescriptions—These changes have been published in the *United States Daily* as follows:

1. All permits outstanding on October 1, 1927, and all new permits issued on and after that date hereafter will be required to be renewed annually. This change affects a large class of permits which heretofore have been treated as continuing in force until surrendered or revoked for cause.

2. Requirement is made that all permittees shall provide a safe and secure place of storage located on permit premises, to be inspected and approved by the administrator, and of sufficient capacity to hold the maximum quantity of intoxicating liquor authorized to be possessed at any one time. Under previous regulations only certain classes of permittees were required to furnish such storage.

3. The method heretofore in use of fixing the allowance of liquor withdrawals for non-beverage purposes on a quarterly basis has been changed to an annual basis with a restriction that not more than 50 per cent of the annual allowance may be possessed by a permittee at any one time.

4. Further restrictions are made on prescriptions of liquor for medicinal purposes by a new provision that a prescription for liquor must be filled within three days after it is issued unless the physician extends the time for not exceeding an additional three days, and a new requirement that compounded prescriptions in which potable distilled spirits are used may not be written or filled for a gross quantity in excess of six fluid ounces.

5. Provisions are made for new forms of applications for permit and permits containing stipulations for inspection of permit premises and records, designation and approval of managers of permit business, termination of permit in the event of change of ownership or management, description of storage place, and revocation of permit for violation of prohibition laws or regulations by the permittee or other persons employed by him in the exercise of the permit privileges.

If these changes mean, as the text seems to show, that physicians shall have to have a place of storage other than ordinary household or office equipment, another annoying requirement is thereby imposed.—*Boston M. and S. Journal*.

New Step in International Relations of Physicians—The cordial relations of the physicians of America, North and South, and their colleagues of the Old World, were further expressed by the appointment of American representatives to the editorial cabinet of the *Acta Dermato-Venereologica* published under the direction of Dr. Johan Almkvist of Stockholm, Sweden. The nominees are Howard Morrow of San Francisco, Howard Fox of New York, J. B. Shelmire of Dallas, D. R. Smith of Toronto, Pardo Castello of Havana, and Herman Goodman of New York.

The *Acta Dermato-Venereologica* publishes original contributions in French, German, or English within the field of dermatology, urology, and social hygiene, and items of interest of persons or progress in these specialties.

American literary contributions should be addressed to Dr. Herman Goodman, 18 East Eighty-ninth Street, New York City.

A Soldier Goes Home—The Medal of Honor worn by Major-General Leonard Wood for gallantry in

action might well have been bestowed for his services as a sanitarian. Although this distinguished soldier and statesman won his fame as an officer of the line and as a colonial governor, he was educated as a physician. This valuable training undoubtedly gave him a proper appreciation of the significance of sanitation and medical service. General Wood was military governor of Cuba when Walter Reed and his colleagues undertook their classic experiments on the transmission of yellow fever. It was Wood who issued the call for volunteers to aid in these tests and it was Wood who supported Major Reed and cooperated with him in his remarkable work. Later, in the Philippines, Governor-General Wood was particularly interested and active in the eradication of another scourge, leprosy. When this malady has been extirpated from the islands an ample share of credit will go to the doctor who became soldier and administrator.

Throughout his honorable career General Wood apparently never forgot the indelible lessons of his early medical training. Had he been successful in his presidential aspirations, there is no doubt that the cause of national health activities would have been advanced.—*Am. J. Pub. Health.*

Suicide in California—Statisticians, such as Dr. Louis I. Dublin and Dr. Frederick L. Hoffman, state that the suicide statistics do not justify recent comments regarding the alleged suicide epidemics which were aroused by the wide publicity given to student suicides in the first part of this year. Doctor Dublin has shown, in fact, that the general trend of suicide rates for all age groups in the ten original registration states has been downward ever since 1909. Doctor Dublin states that the death rates for suicide have been decreasing at all ages, but that the rate of decrease has been different for the various age groups, and more favorable, relatively, in the younger ages. There is nothing to indicate in the California statistics that there is any increase in suicides among those individuals who are from ten to nineteen years of age.—*Weekly Bulletin, State Board of Health.*

Supervisor, Crippled Children, Appointed—Miss Winifred Tougas has been appointed Supervisor, Crippled Children, under the provisions of the Crippled Children Act of the last legislature. Miss Tougas has had many years of experience with crippled children. She served under the Harvard Infantile Paralysis Commission for two and a half years and was for four years connected with the Minnesota State Board of Health, where she was engaged in searching out, examining and following up cases of paralysis resulting from acute poliomyelitis. She was associated for five years with the Robert B. Brigham Hospital in Boston, Massachusetts, whence she came to the California State Department of Public Health, beginning her new duties October 1.—*Weekly Bulletin, State Board of Health.*

University of California Professor Honored—Professor A. L. Kroeber, chairman of the department of anthropology at the University of California, has just been named faculty research lecturer for 1928.

The faculty research lecturer is selected each year by a faculty committee from among those scientists connected with the university who have contributed most to science during the previous year, or who have concluded some particularly interesting piece of work.

Doctor Kroeber is recognized as one of the leading men in his field in the United States and recently concluded an expedition to Peru for the Field Museum of Chicago, in search of material on the prehistoric natives of that district, made famous by the later Incas.—*University of California Clip Sheet.*

Ethics of Medical Newspaper Writing—Dr. Charles A. L. Reed was president of the American Medical Association at the time of its reorganization. He later was on the committee that formulated its "Principles

of Ethics." He is now devoting himself exclusively to literary work, his last book, "The First Estate," just from the Stratford press, being a novel with a scientific motif. But, in addition to writing books, he writes an article on health and success every day for the King Features Syndicate, New York, which, in turn, furnishes the series for simultaneous publication in many newspapers of the United States, Canada, and foreign countries. Doctor Reed's views on the ethics involved in his newspaper work, are, therefore, of interest. In a recent interview he said:

"No, I have not 'retired.' I am now practicing 'educational medicine.' I am 'carrying the message to the masses,' as it were. It is true my articles are having a phenomenal run. This, in large part, is due to the influence of the medical profession. You see, I had long wanted to do just what I am now doing. The opportunity came to me unexpectedly. I saw, however, that newspaper writing could not be ethically combined with a fee-earning practice. Each was entirely ethical within itself, but the two wouldn't mix. The combination spelled 'advertising' with the worst form of unfair competition. My practice at the time was distinctly national. But, without hesitation, I announced to the entire medical profession that I would accept no more patients—and I haven't. Now, in spite of the fact that I have never published my home address in my articles—another fine ethical point—I do receive through my many newspaper offices literally hundreds of letters asking for treatment. In no single instance have I ever given it. The experience, however, shows what I mean by 'unfair competition.' On the other hand, I have used my articles, now numbering well on to two thousand, to create a higher appreciation of the medical profession by the general public—a better understanding between the two. This is a thing that I have been and am doing much more effectively, so far as publicity methods are concerned, than the profession in any locality can do in its own behalf. It is doubtless in recognition of this fact that, as I know to have been true in many instances, my professional colleagues have asked editors to put on my feature and have thus helped to extend my circulation and influence."

Reunion of Camp Greenleaf and Fort Riley Alumni—The second annual reunion and dinner of the Camp Greenleaf and Fort Riley Alumni will be held on Thursday, November 10, 1927, at the City Club, Los Angeles, at 6 p. m.

The inaugural reunion and dinner held last Armistice night was a delightful affair.

Despite the difficulty of locating the Alumni of these training camps now residing in southern California, paucity of publicity, and many counter-attractions, the attendance was good. The celebration was quite informal in character and was characterized by an abundance of good fellowship.

Vivid narration of thrilling experiences on land and sea by old chums and comrades in arms made an impression that will not soon be forgotten.

During our term of service at Greenleaf and Fort Riley as "buck privates" (and poor ones at that) many of us longed for the day to come when the emergency would be over, and as free-born American citizens we could say in powerful and picturesque language just what we thought of some of our instructors.

This reunion gave us that opportunity, and the fearless criticism of men and measures proved a source of unalloyed joy and hilarity. A fine and much patronized hotel in Chattanooga, whose early fortune was alleged to have been linked in some way with the Wine of Cardui, was also a target of good-natured joshing.

A more somber and serious note was sounded after the bubbling effervescence evoked by the mingling of many friends whom we had not seen or heard from since leaving the training camp had subsided.

It was unanimously conceded that, in spite of abundant trials and tribulations incident to camp life, our

brief period of service with Uncle Sam's Army had been a distinct benefit and blessing.

All present united in the opinion that the celebration, in every sense, had been such a striking success that it ought to be made an annual event and held on the night before Armistice Day.

Captain John C. Copeland, 301 Story Building, was appointed permanent secretary. For the second annual reunion and dinner, to be held on November 10 (Armistice eve), a splendid program has been arranged.

Colonel E. L. Munson, surgeon of the Ninth Corps Area, who for some time was the commanding officer of the Medical Officers' Training Camp at Camp Greenleaf, will be the principal speaker.

Thousands of medical officers who received their military training at Greenleaf hold Colonel Munson in affectionate remembrance.

It is safe to state that the splendid esprit de corps which characterized the Medical Corps was in a large measure due to the inspiring influence of Colonel Munson. He was the embodiment of culture, high courage and unselfish devotion. In the medical officers who had the good fortune to be within the sphere of his influence, Colonel Munson awakened a fine spirit of service and sacrifice.

In view of the fact that we are privileged to have such a distinguished guest as our principal speaker on this occasion, it is earnestly hoped that every physician holding a commission in the Reserves will make a special effort to attend.

All physicians who served in the late war, under whatever flag they were commissioned, are also cordially invited to this reunion and dinner.

Further particulars may be obtained from Colonel D. L. High, Los Angeles General Hospital; Major Sidney V. Kibby, 1308 Wilshire Boulevard; or from the secretary, Captain John C. Copeland, 301 Story Building, Los Angeles, California.

MEDICAL ECONOMICS

Hearing on Regulations for Caustic Poison—A public hearing on proposed regulations for the enforcement of the Federal Caustic Poison Act will be held at 10:30 a. m., Tuesday, September 20, 1927, at 216 Thirteenth Street, S. W., Washington, D. C., according to an announcement by the Food, Drug and Insecticide Administration, United States Department of Agriculture, which is charged with the enforcement of the act. The trade and all persons interested are invited to attend. Comments on the proposed regulations may be submitted either orally or in the form of letters or briefs.

The Federal Caustic Poison Act was passed by Congress and became effective on the date of its passage, March 4, 1927. The law provides that no penalty or condemnation shall be enforced for any violation of the act occurring within six months of its passage. Tentative regulations for the enforcement of the law have been prepared by the Department of Agriculture.

The purpose of the law is to safeguard the users of certain dangerous caustic and corrosive acids, alkalis, and other substances by requiring that parcels, packages, or containers suitable for household use bear upon the label or sticker the word "Poison" in uncondensed Gothic capital letters of not less than 24 point size and immediately following the word "Poison" directions for treatment in case of internal or external injury.

In lieu of personal appearance at the hearing, comments on the tentative regulations may be submitted in writing on or before September 20, 1927, to the Food, Drug and Insecticide Administration, United States Department of Agriculture, Washington, D. C.—U. S. Department of Agriculture.

TWENTY-FIVE YEARS AGO *

Excerpts From Our State Medical Journal—Taken From Volume 1, No. 1, November, 1902

From the initial editorial entitled "Purpose of the State Journal":

The *California State Journal of Medicine* will hereafter take the place of the annual volume of *Transactions of the Medical Society of the State of California*. The journal will be sent free to every member of the state society, and will be issued monthly. . . . The advertising pages of the journal will be limited in number and will be open only to advertising matter which complies with the strictly ethical standard that is so well understood by all, yet so frequently forgotten—when there is a financial reason to forget. The journal will be the partisan of no one and nothing save only and always an energetic partisan for honest, legitimate, ethical practice of the regular profession, for truth and right, and, first, last and all the time, for ORGANIZATION, and again ORGANIZATION, of the regular profession of California into a united body—the state society. . . .

From an editorial on "Membership in State Society":

The medical society of the state of California, at its meeting in 1901, decided to adopt the reorganization scheme suggested by the American Medical Association, and on motion a committee was appointed to formulate a new constitution and by-laws. At the meeting of 1902 the constitution and by-laws prepared by this committee were formally adopted. . . .

From an editorial on "Character of Advertising":

Pages of very many journals are devoted to paid notices of these "proprietary" articles and the average physician cannot tell them from the regular reading matter, which they purport to be. That such advertising pays is made evident by looking through the files of prescriptions at any drug store. Scores and scores of prescriptions will bear such directions as Punk and Dollar's Pill No. 362; Worth's Syrup Dogood; Elixir Rejuvenitis Compound, A. B. & Co. And nine times out of ten the physician who orders this stuff does not even know what he is prescribing. . . .

From an editorial on "San Francisco and the Plague":

The authorities . . . deserve the severest rebuke for their negligence in the matter of bubonic plague. . . . The various State Boards of Health in the United States are asking to unite in calling upon the Surgeon-General of the Marine Hospital and Public Health Service to arrange at the earliest possible date a joint conference for the purpose of eradicating plague from the United States. Since March 8, 1900, there have been eighty-eight cases recorded in California, fifteen of this number occurring since September 9, 1902. It is rumored that many other cases have occurred which were not reported. . . .

From an article on "Some Notes on the Visit of Professor Lorenz of Vienna to San Francisco":

Prof. Adolf Lorenz, a well-known orthopedic surgeon of Vienna, is making a tour of the United States,

* Through this "Twenty-Five Years Ago" column, it is hoped to familiarize colleagues who in more recent years have joined the California Medical Association, concerning the activities and work of our state association, and of members who were active in the period two decades and a half remote. For older colleagues who were members twenty-five years ago, it has been thought that the references may recall incidents and associations which may be of interest or pleasure to momentarily dwell upon. To know what our predecessors fought for and accomplished should make for increased loyalty to the traditions and objects of our organization.

visited San Francisco and Los Angeles, arriving in the former city on the evening of November 2 from Salt Lake. . . .

From the Proceedings of the California Academy of Medicine:

At the October meeting of the California Academy of Medicine Dr. William Fitch Cheney read a paper entitled "Report of a Fatal Case of Gastro-Duodenal Ulcer, with Autopsy Findings." . . . Doctor Barbat recalled a patient that he had recently seen in whose case there were some points of similarity to that of Doctor Cheney's patient. . . . Doctor Wilbur mentioned a rather unusual case that he had recently encountered. . . . Doctor Ophüls, in discussing the case presented by Doctor Cheney, said that two points of interest presented themselves to him. First, the ulcer was found with some difficulty. . . . Second, the history pointed to two ulcers. . . . Doctor Huntington dwelt upon the fact that dilatation of the stomach, which is supposed to be an ever present symptom when the pylorus is affected, was absent in the case reported by Doctor Cheney. . . . Doctor Rixford said that he shared the responsibility with Doctor Cheney, for he had early been called in consultation. . . . Doctor Brown called attention to the great importance of the proper medical treatment of these cases. . . .

Doctors Newmark and Sherman presented a patient of whom Doctor Newmark gave the following history. . . .

Dr. Mark White of the M. H. Service exhibited some specimens and slides of distomum fineuse. . . . He was of the opinion that it would be found here sooner or later, as would also most Asiatic diseases.

From an article by H. Bert Ellis:

The opening sentence of an article on "The Mastoid Operation in Chronic Suppurative Otitis Media" by H. Bert Ellis of Los Angeles read: "Of all diseases with which the otologist has to do, probably chronic otitis media gives him the most annoyance. These cases, more frequently than otherwise, are unsatisfactory to treat on account of their obstinacy to all the blandishments of the most versatile of conservative specialists; and further, on account of their proneness to recur, though pronounced cured, on the slightest provocation, even after lying dormant for shorter or longer periods of time.

From the Proceedings of the San Francisco County Medical Society:

Doctor Sherman also read "A Note Regarding Supracondyloid Fractures of the Humerus." The subject was discussed by Dr. Rixford, Dr. J. Henry Barbat, Dr. Cooper, Dr. Hunkin, and Dr. Kenyon, the point at issue being the best position in which to dress the fractured arm. . . .

From an article on "Bubonic Plague in California":

At the meeting of the State and Provincial Boards of Health of North America held at New Haven, Connecticut, October 29, 1902, the following history of the outbreak of bubonic plague in California was recited, and the appended resolutions were passed: . . . "and, *Be It Further Resolved*, That the National Conference of State and Provincial Boards of Health of North America does hereby advise the various State Boards of Health of the United States to consider the propriety of calling upon the Surgeon-General of the United States Public Health and Marine Hospital Service to arrange at the earliest possible date a joint conference for the purpose of eradicating plague from the United States."

From the directory of officers and Proceedings of the Medical Society of the State of California (the former name of the C. M. A.):

The directory of the Medical Society of the State of California gave as the names of officers the follow-

ing: F. B. Carpenter, president; George H. Evans, secretary; Elmer E. Kelly, treasurer; oration in medicine, William Watt Kerr; oration in surgery, Granville MacGowan. . . .

From the minutes of the proceedings of the Medical Society of the State of California at its thirty-second annual session held in Golden Gate Hall, 625 Sutter Street, San Francisco, California, April, 1902, is quoted: W. F. B. Wakefield of Oakland read a paper entitled "Conservatism in Gynecology," which was referred to the Committee on Publication, and was discussed by J. Henry Barbat of San Francisco. . . . Dudley Tait of San Francisco read a paper on the "Technique of Louget's Operation for Radical Cure of Hydrocele." This paper was referred to the Committee on Publication and discussed by M. Krotoszyner of San Francisco. . . . Special order of business was called. The Executive Committee presented the report of the Committee on Revision of the Constitution and By-Laws, and on motion of J. H. Parkinson, it was ordered that the report be read and adopted section by section. Philip Mills Jones for the Executive Committee then made their report. . . .

From a news clipping:

A physiology hall, containing a salt-water aquarium, research laboratories, and class laboratories, will be erected at once on the Berkeley campus, through the generosity of Mr. Rudolph Spreckels. Physiology Hall will shelter the new department which is to be organized by Dr. Jacques Loeb. . . .

From Tri-County Society proceedings:

The Tri-County Medical Society of California met in this city on Wednesday evening. Dr. Saxton Pope, the secretary of the society, arrived on the afternoon train. . . . Doctor Pope read a very interesting, instructive paper upon the subject, "Mosquitoes from a Medical Standpoint." The value of the paper was very materially increased by the splendid enlarged illustrations, which also represented Doctor Pope's artistic skill.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.
Secretary of the Board

Under a new law passed by the last legislature all practicing barbers must obtain a license issued by the Board of Barber Examiners, a certain test of competency being required, and it is estimated that more than 10,000 certificates will be issued.

According to an Associated Press dispatch dated Los Angeles, October 12, published in the San Francisco *Examiner* of October 13, Dr. Fred J. Barnett, Los Angeles physician, was sentenced to serve a total of 180 days in the county jail on each conviction in connection with liquor irregularities. He was acquitted on liquor-possession charges in each case. His defense was that the police officers had "framed" him because he had criticized the activities of a police captain.

In an editorial in the San Francisco *Call* of September 30, commenting on the announcement that seventeen doctors had been charged before the Board of Medical Examiners, the majority of them with violating the narcotic laws and illegal operations, it was related that "no profession in the world today has greater responsibility than the doctor's. Every day something new is learned about the human body. Somebody discovers something each year that upsets old theories and practice in medicine. The doctor gets

little enough credit for what he is doing or trying to do."

According to reports George H. Coulthard, Long Beach, California, was arrested by officers of the State Pharmacy Board, September 13, who charged him with violation of the State Poison Act, that is, illegal sale of morphin—a felony. The records show that Doctor Coulthard was arrested December 20, 1923, by the narcotic squad of the District Attorney's office charged with having violated the State Poison Law. On January 29, 1924, Special Agent Carter reported complaints in the courts of Long Beach, charging George H. Coulthard with violation of the Pharmacy Act as follows: October 4, 1923; October 30, 1923; December 20, 1923 (two). These cases were dismissed April and May, 1924.

Governor Young recently appointed Mrs. M. Pearl Newman, Mrs. Margaret A. Bering, San Francisco; Mrs. Susan Smith David and Leopold Cristion, Los Angeles; and Mrs. Leonore E. Herman of Oakland as members of the State Board of Cosmetology created by the last legislature. The board is reported as actively engaged in endeavoring to certify some 15,000 to 20,000 individuals in California that come under the provisions of this act.

Some of the Chinese herbalists in San Francisco are reported to have recently rubbed from their signs the lower portion of the "r" in the prefix "Dr." so as to make the prefix read "Dp." Whether this ruse will influence the courts when these individuals are brought to trial on a charge of violating the Medical Practice Act, remains to be seen.

According to reports of our investigation department, George Gwatkin, reported arrested in Los Angeles in 1925 by officers of the State Pharmacy Board, he then being reported as selling an asthma remedy apparently composed of oil of mustard and axle grease, was recently investigated, it being reported that he was selling a medicine or remedy, charging \$30 "for enough to cure a patient—payable \$15 down and the balance in ten months."

Kenzo Koga, a Japanese recently arrested in Delano on a charge of violation of the Medical Practice Act, pleaded guilty and was fined \$100 and sentenced to a six months' jail sentence, suspended during good behavior for two years. It was related that Koga, posing as a physician, had practiced in California in different localities for some time, his only qualification being a diploma from the College of Mechano Therapy, Chicago, Illinois, dated 1911. "His office contained various medicines, vaccines, etc., approximately two hundred bottles, boxes, etc., some surgical instruments, catheters, etc., and several hypodermic needles." His offices located in the back of a Japanese poolroom were discovered by accident when the police were reported as having raided the place as a disorderly house.

B. H. Launsberry recently pleaded guilty to a charge of violation of the Medical Practice Act in Los Angeles and was sentenced to serve ninety days in the city jail "sentence being suspended two years on condition that the defendant does not violate the Medical Practice Act during that period." He is reported to have claimed that he was a graduate of the University of Pennsylvania in 1916 and licensed in New York the same year; however, his name does not appear in the 1927 American Medical Association directory, which lists all graduates of medical schools licensed to practice in North America.

William McBride, recently charged with surreptitiously extracting narcotics from the supply of vari-

ous druggists, pleaded guilty in Los Angeles, but has not as yet been sentenced, he informing our investigator that he had been using narcotics about two years.

It was reported that on September 30 Morris Prelusky pleaded guilty in the city of Los Angeles to violation of the Medical Practice Act and was sentenced to one hundred days in the county jail, suspended for two years. According to a report, Prelusky, then employed in a Los Angeles drug store, had examined a patient, advising her that there was trouble with her appendix and giving her instructions regarding certain local treatments, also prescribing a liquid medicine, on the label attached to which appeared the name "Dr. Prelusky." The records show that on January 5, 1927, Prelusky was sentenced to pay a fine of \$250 and serve thirty-five days in jail.

Our attention was recently directed to a newspaper advertisement of "Dr. M. M. Preston, 465 Geary, San Francisco," said advertisement relating that he himself was in possession of information relative to treatment that was unknown to anyone else in the world. He is reported to have told our investigator that he was a graduate of a medical college, but when arrested on a charge of violating the Medical Practice Act denied that he was a graduate in medicine, but reported that he had several astrological degrees.

Herbert J. Smith, an oil-field worker recently alleged to have posed as a physician, is reported to have pleaded guilty in Los Angeles County to a bad check charge on September 17 and sentenced to fifteen months in the county road gang, and is under probation for nine years following his release from the road gang.

The Board of Medical Examiners has found that the application of Weymouth Leo Swainson, based upon diploma from Meharry Medical College and a Tennessee license, contains fraudulent credentials and an article relating thereto has been forwarded the Bulletin of the Federation of Medical Examining Boards for publication.

Set upon by a pair of footpads when he stopped his machine in front of 6779 West Washington Street late last night, Dr. John Suckow, physician and capitalist of 1283 Third Avenue, was brutally beaten and robbed of his machine while two women companions looked on helpless to aid. . . .—*Los Angeles Record*, September 16, 1927.

Statement of the Facts and Opinions Agreed to by the International Meeting on Cancer Control Held at Lake Mohonk, New York, U. S. A., September 24, 1926—Although the present state of knowledge of cancer is not sufficient to permit of the formulation of such procedures for the suppression of this malady as have been successfully employed for the control of infectious diseases, there is enough well-established fact and sound-working opinion concerning the prevention, diagnosis and treatment of cancer to save many lives, if this information is carried properly into effect.

The causation of cancer is not completely understood, but it may be accepted that, for all practical purposes, cancer is not to be looked upon as contagious or infectious.

Cancer itself is not hereditary, although a certain predisposition of susceptibility to cancer is apparently transmissible through inheritance. This does not signify that, because one's parent or parents or other members of the family have suffered from cancer,

cancer will necessarily appear in other persons of the same or succeeding generation.

The control of cancer, so far as this subject can be understood at the present time, depends upon the employment of measures of personal hygiene and certain preventive and curative measures, the success of which depends upon the intelligent cooperation of the patient and physician.

Persons who have cancer must apply to competent physicians at a sufficiently early stage in the disease in order to have a fair chance of cure. This applies to all forms of cancer. In some forms early treatment affords the only possibility of cure.

Cancer in some parts of the body can be discovered in a very early stage, and if these cases are treated properly the prospect for a permanent cure is good.

The cure of cancer depends upon discovering the growth before it has done irreparable injury to a vital part of the body and before it has spread to other parts. Therefore efforts should be made to improve the methods of diagnosis in these various locations and the treatment of the cancers so discovered.

Practitioners of medicine must keep abreast of the latest advances in the knowledge of cancer in order to diagnose as many as possible of the cases of cancer which come to them.

There is much that medical men can do in the prevention of cancer, in the detection of early cases, in the referring of patients to institutions and physicians who can make the proper diagnosis and apply proper treatment when the physicians themselves are unable to accomplish these results. The more efficient the family doctor is the more ready he is to share responsibility with a specialist.

Dentists can help in the control of cancer by informing themselves about the advances in the knowledge of the causes of cancer, especially with relation to the irritations produced by imperfect teeth and improperly fitting dental plates. They can also help by referring cases of cancer which they discover to physicians skilled in the treatment of cancer in this location. It may be doubted whether all dentists fully realize the help which can be obtained from x-ray photographs in revealing not only the state of the teeth, but the condition of the bone surrounding them.

Medical students should be instructed in cancer by the aid of actual demonstrations of cancer patients, and this to a sufficient extent to give them a good working knowledge of the subject.

The most reliable forms of treatment and, in fact, the only ones thus far justified by experience and observation, depend upon surgery, radium, and x-ray.

Efforts toward the control of cancer should be made in two principal directions: (1) the promotion of research in order to increase the existing knowledge of the subject, and (2) the practical employment of the information which is at hand. Even with our present knowledge many lives could be saved which are sacrificed by unnecessary delay.—*Minnesota Med.*

A Story of Courage—"I do not want to be a doctor and live by men's diseases, nor a minister to live by their sins, nor a lawyer and live by their quarrels. So I don't see that there is anything left for me to be but an author. How would you like some day to see a whole shelf full of books, written by your son, with Hawthorne's Works printed on their backs?"

The boy who asked this question of his mother was destined to become the foremost of America's novelists. His "Twice-Told Tales" and "Mosses from an Old Manse" were followed by that product of genius, "The Scarlet Letter." In 1851 two events of importance occurred in Nathaniel Hawthorne's household—the publication of "The House of the Seven Gables," and the birth of his youngest child, Rose.

Rose Hawthorne grew up in an atmosphere surcharged with intellectualism. She showed a talent for painting, and studied art in Germany. She wrote short stories for the little folk in "Wide Awake" and "St. Nicholas," and a volume of poems, "Along the Shore." Some exquisite specimens of her poetry are preserved

in Stedman's American Anthology. At the age of 20, Rose Hawthorne married George Parsons Lathrop, author of "Rose and Rooftree," who will always be remembered as the author of the lyric beginning, "The sunshine of thine eyes." Each of them wrote a study of Hawthorne, and in collaboration they produced a novel called "A Story of Courage."

With the passing of the nineteenth century, Rose Parsons Lathrop disappeared from the world. In 1900 there was a new Dominican religieuse, Mother Mary Alphonsa, devoting herself to destitute sufferers from incurable cancer. Her work in the Cherry Street Home in New York City, and in the Rosary Hills Home in the village of Hawthorne, placed her by the side of Father Damien among his lepers in Molokai. She founded the community of Dominican nuns known as the Servants of Relief for Incurable Cancer. Mother Alphonsa's creations seem anomalous in this Motor Age. If you had friends or money, you could not enter the homes of Mother Alphonsa—only if you were poor and friendless, were you received as a guest. If you were among the worst cases you would be tended by Mary Alphonsa herself, and you would be surprised to find that in addition to attending to all your needs, she sought to gratify every wish. In their last days the helpless and loveless victims of a baffling disease were face to face with a love that is rarely manifested on earth. In the Motor Age—and yet only those too poor to pay for any service were privileged to die holding the hand of a saint.

The other day the newspapers chronicled the passing of Mother Mary Alphonsa at seventy-six, and perhaps many were surprised to learn that she was no other than Rose Hawthorne Lathrop. The ancestors of Rose Hawthorne Lathrop whipped Quaker women and persecuted witches, but Mother Mary Alphonsa opened her arms to the cancer sufferers of every creed and race. Mrs. Lathrop wrote "A Story of Courage," but the tale does not compare with the story of courage which Mother Alphonsa lived.

The career of Mother Mary Alphonsa helps to redeem our era. To physicians, who know only too well the horrors of incurable cancer, the incredible sacrifice of this high-born woman has a special appeal. The history of cancer cannot be written without the story of Mother Mary Alphonsa and the Servants of Relief for Incurable Cancer.—*Medical Review of Reviews.*

Verses from the Pen of Dr. H. Edwin Lewis—The versatility of Doctor Lewis' gifts as a writer led him into many fields other than that of medicine, and some of his excursions into the realm of poetry earned for him considerable commendation.

FACES

Men's faces are the portraits of their souls,
The very image of their inmost thoughts,
For if man's life be warped by vice and crime,
His face will show their imprints more than all.
But let his life be full of noble deeds,
Of love for God and sympathy for man
And heav'n itself will touch the homely face
Like golden sunshine after April show'rs.

* * *

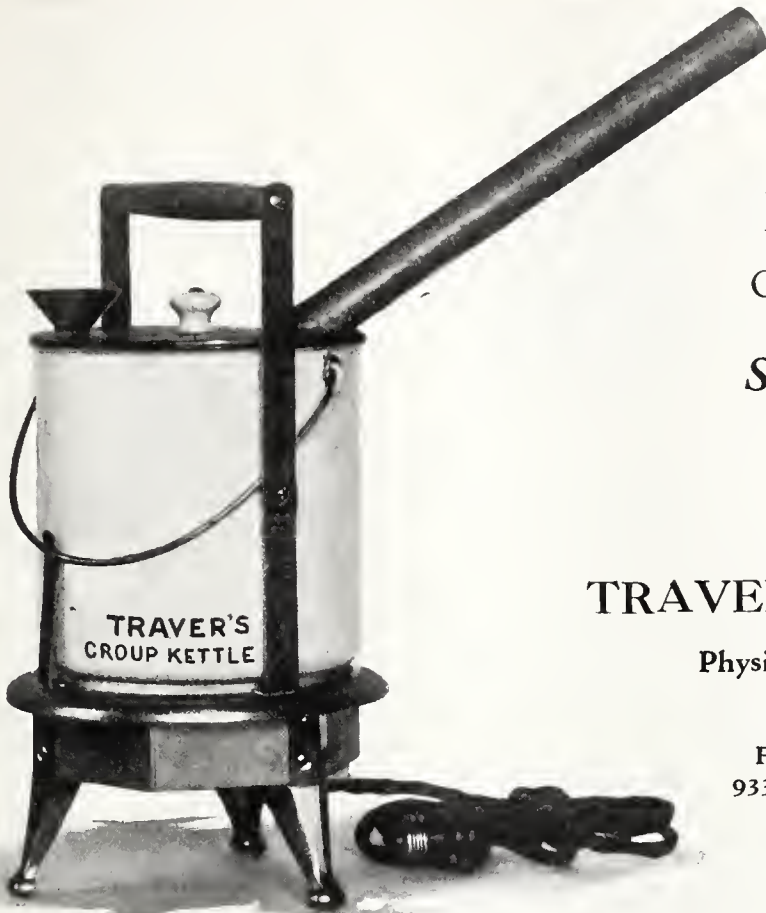
A DOCTOR'S PRAYER

To live to learn;
And find each close of day,
Myself a little nearer truth,
A little farther on my way.

A little life,
But give me, God, the pow'r
To conquer self and all the doubts
That rise from hour to hour.

And give me strength
When problems try my soul,
To know the right and do the right
With honesty my goal.

Nor let me fail
To do the best I can
To overcome earth's greatest curse,
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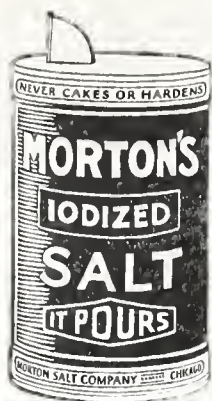
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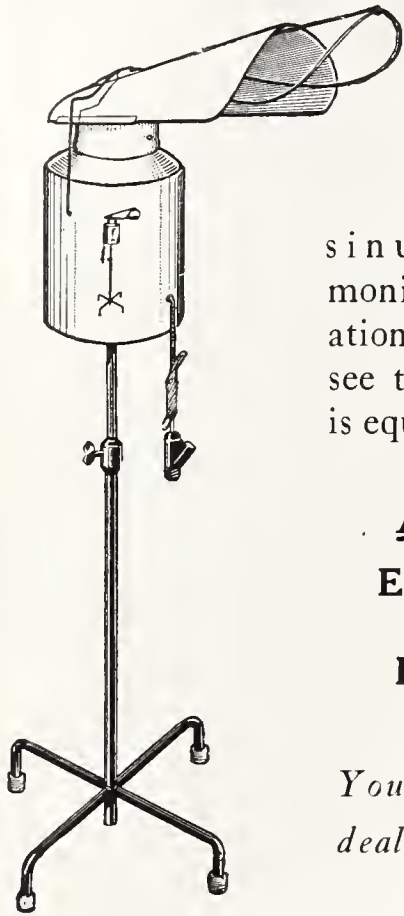
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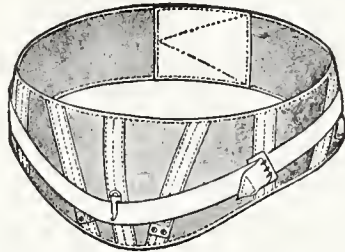


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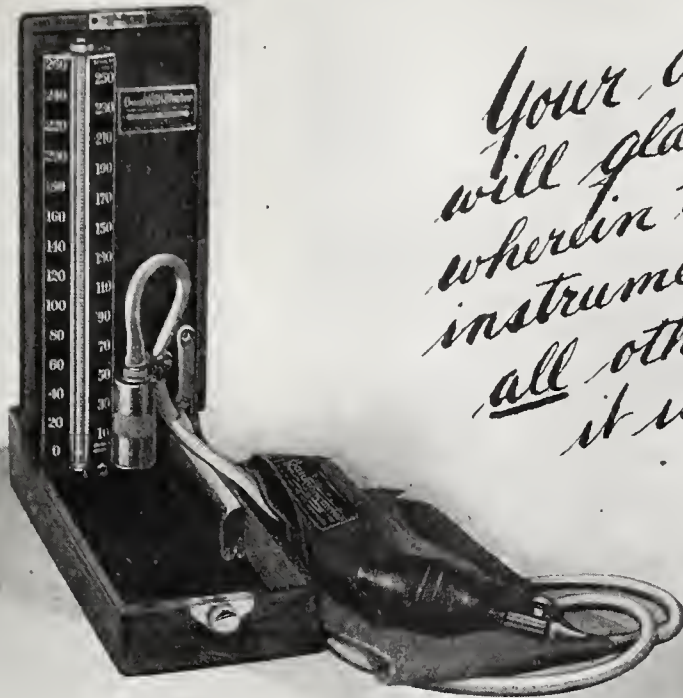
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—*St. Louis Star.*

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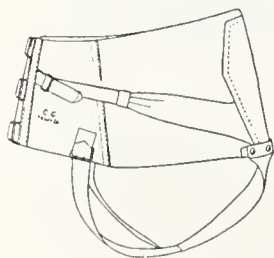
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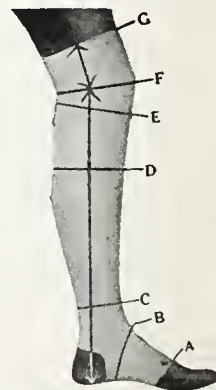


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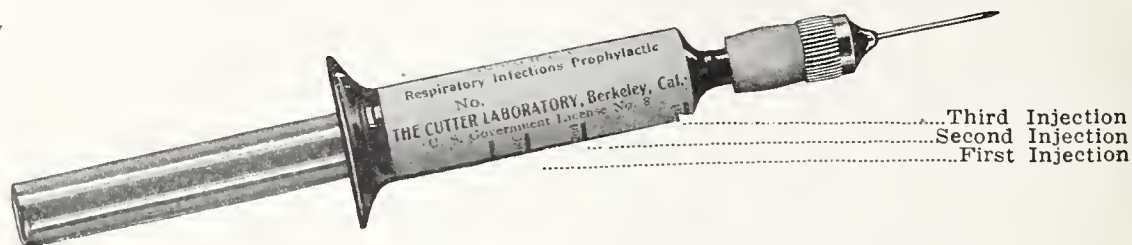
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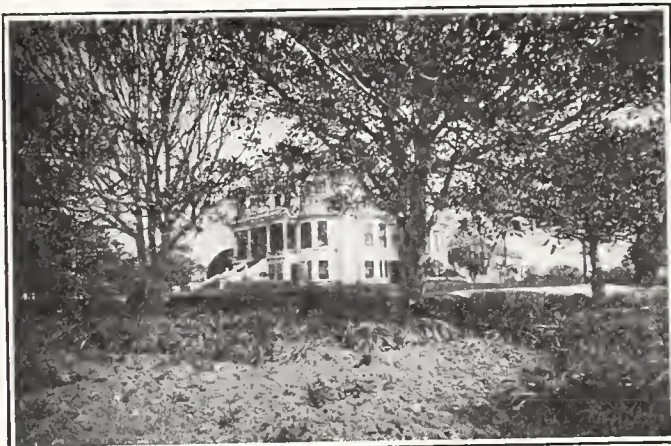
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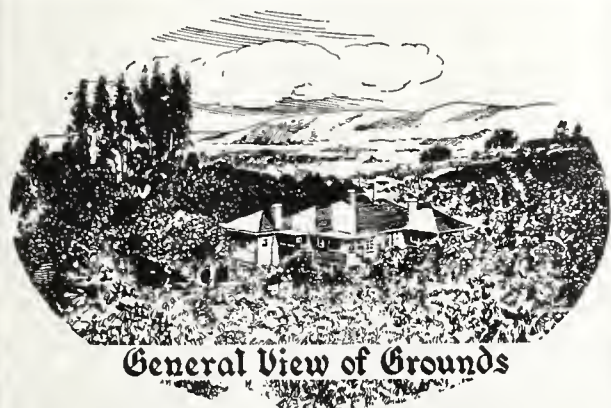
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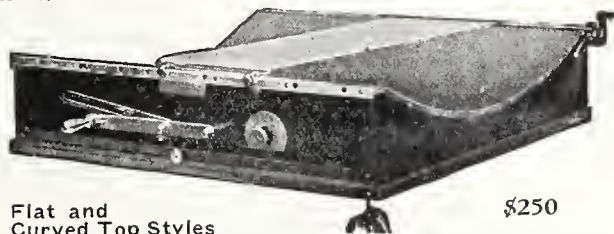
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Austria's New Social Insurance Law—A law regarding sickness, accident, and invalidity insurance, passed April 1, 1927, makes insurance compulsory for all manual workers and apprentices, except those employed in agriculture and forestry. In the law of 1888, which this supersedes, and all previous laws, only those whose wages were below a certain amount were insured, and benefits were less generous. A law of 1920, however, requires all clerical workers to be insured.

Under the law of 1927 sick benefits are paid not only to insured persons, but also to the non-insured wives of insured men and their dependent children, whether legitimate or illegitimate. The sick benefits consist of cash payments, and medical aid, though institutional care may be substituted. Insured women are entitled to maternity benefit, paid at the rate of the sick benefit, for six weeks before and six weeks

after confinement. Non-insured wives of insured men receive one-half of the regular sick benefit during that time. Nursing mothers, whether wives of insured men or insured in their own right, receive for twelve weeks a nursing benefit paid at half the rate of the sick benefit.—U. S. Children's Bureau.

Legal Age of Marriage Raised in India—During the last three weeks, according to the *Indian News Service*, three more states of India have promulgated laws raising the age of legal marriage to 12 and of real marriage to 14 or 16. In Kota the age at which boys may marry has been raised to 16, that of girls being 12, while girls under 18 may not marry men over 35, nor girls under 20 men over 45. Arrangements have been made for prosecution to follow such marriages, even though they have been performed outside the state.—U. S. Children's Bureau.



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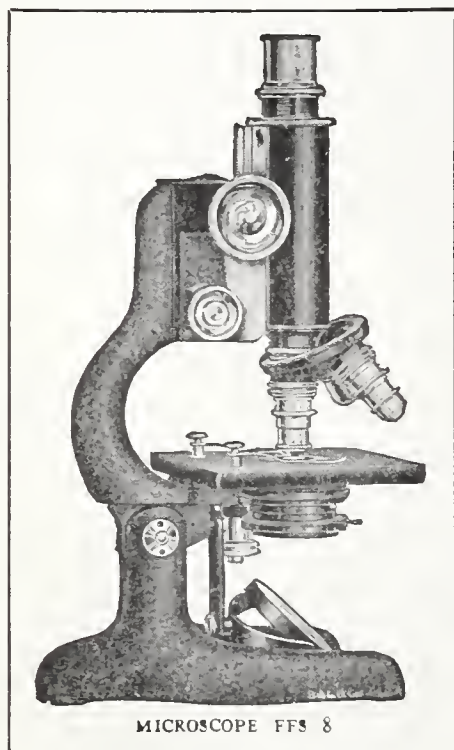
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Pituitary Gland Studied at University of California

—Further information concerning the extreme complexity and interrelation of the ductless glands of the body has been obtained by Professor Bennet M. Allen of the department of zoology of the University of California at Los Angeles, as a result of a careful study of the thyroid and hypophysis or pituitary glands of polywogs, just completed and made public through the University press.

Professor Allen has found that the thyroid gland, which governs growth in individuals, is itself governed in growth and efficiency by the forward lobe of the pituitary gland. Other workers have demonstrated that some relation existed, but Professor Allen has definitely shown that it is the forward lobe of the gland which governs the thyroid, and he has also shown that although growth does not take place without the pituitary, neither will it take place without the thyroid. In other words, both must work in cooperation to bring about normal development, his results show.

Polywogs in which the pituitary gland was lost, Professor Allen found, failed to develop normally into frogs; but when the forward portion of the pituitary gland was implanted in them they immediately started development again. Attempts to accomplish this result with other parts of the pituitary gland were unsuccessful, as were also attempts to restore to normalcy a polywog in which the pituitary and thyroid were both missing by implanting the forward lobe of the pituitary.—*Univ. of Cal. Clip Sheet.*

Respectfully Referred—A visitor at the country club, while eating lunch, called the steward to his table.

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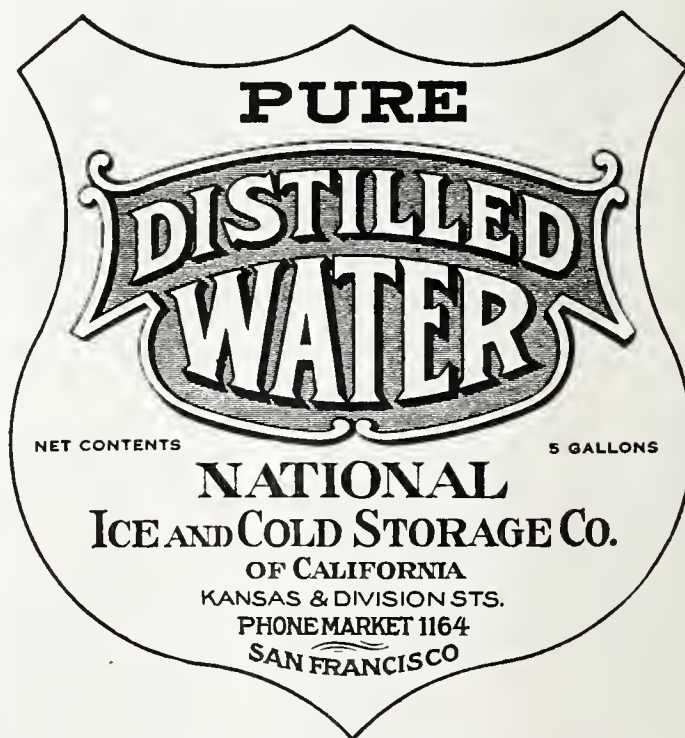
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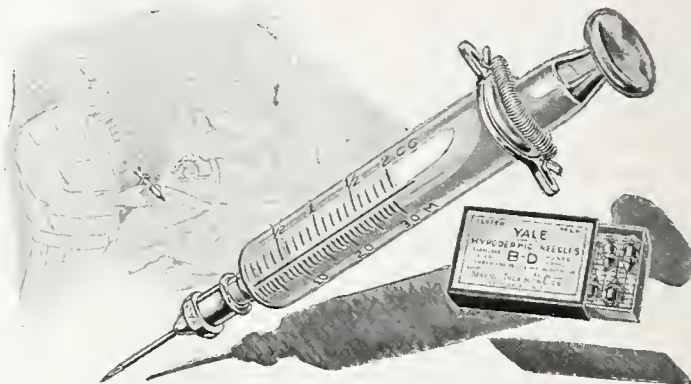
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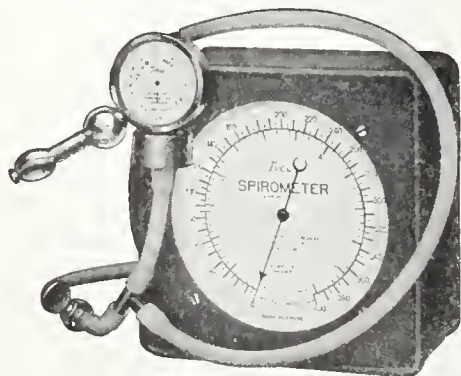
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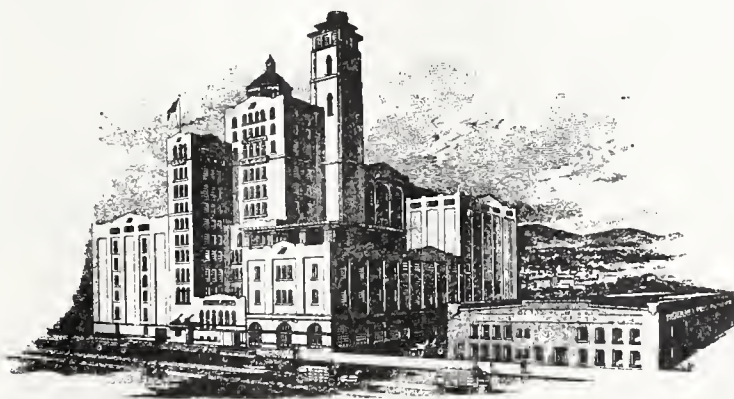
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Our records show that several statements and reminders have been sent you regarding the enclosed statement.

If your circumstances have made it impossible for you to pay the amount due, kindly write us promptly to that effect. Our office will then endeavor to extend all possible courtesies.

You appreciate, we are sure, that physicians, like other citizens, must pay their bills promptly. They can only do so, however, when their own clients in turn pay them promptly for such professional services as may have been rendered.

A check to cover your account, which is now considerably overdue, will be appreciated.

Final Notice

In practically all businesses the custom which is generally followed with overdue accounts is to send such to a collecting agency.

Our bookkeeper has nothing in the records of the office to show when you intend to pay the enclosed account. Perhaps the previous statements and reminders may have been overlooked or ignored.

Following the rule of this office, this overdue account will be sent to the collecting agency within ten days if arrangements for its settlement are not made prior to that time.

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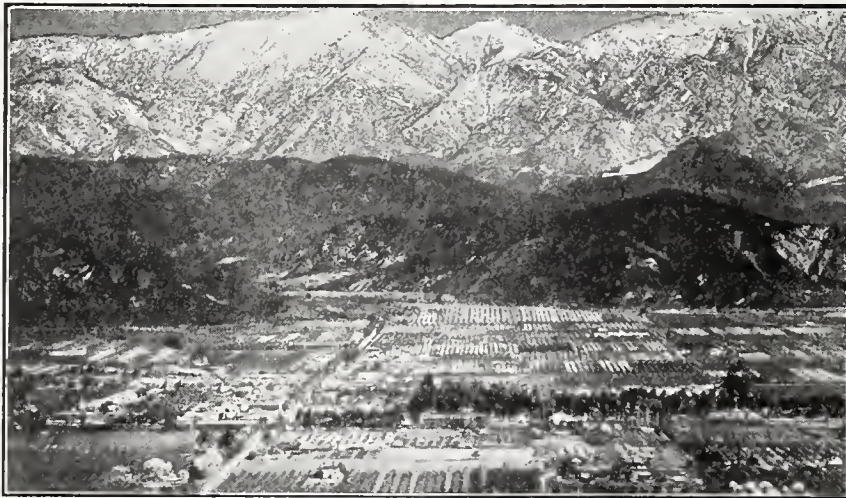
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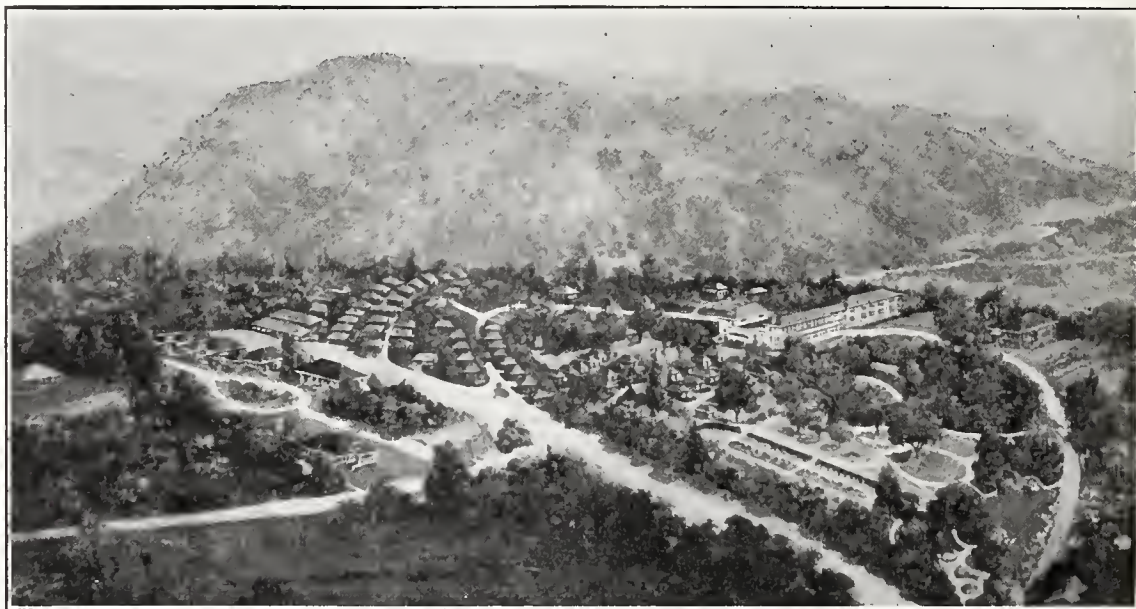
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offers presumptive evidence of the value of a liberal fat intake."—McLean & Fales, Page 116.

"The importance of fat to the infant, however, can be shown very clearly from the fact that 12 to 13 per cent of the body weight of the normal infant is fat, while atrophic infants have only 0.2 to 2.0 per cent of fat."—Chapin & Royster, Page 124.

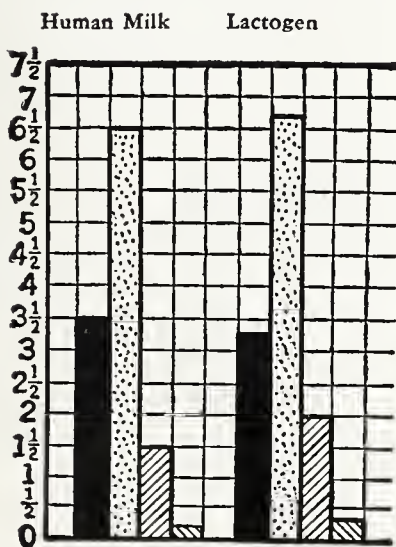
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—DR. HOLT, Page 178.

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—DRS. MCLEAN and FALES, Page 162.

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Italy's Tax on Bachelors—The Italian Government recently introduced a tax on bachelors, the proceeds of which are to be used for the work of the National Bureau of Maternity and Infant Welfare, which has been greatly hindered by lack of funds. Premier Mussolini has recently expressed the opinion that in order to obtain sufficient funds for this purpose it may be necessary to impose a tax on childless marriages also. The National Bureau of Maternity and Infant Welfare, through its provincial committees, supervises a large number of agencies engaged in maternity and infancy work.—U. S. Children's Bureau.

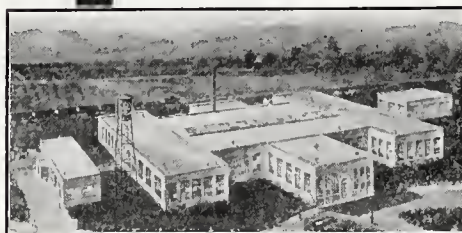
The men whom I have seen succeed best in life have always been cheerful and hopeful men who went about their business with a smile on their faces, and took the changes and chances of this mortal life like men, facing rough and smooth alike as it came.—Charles Kingsley.

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Adams County Physicians Prepare to Combat the "Dead Beats"—Last month the Adams County Medical Society of the state of Illinois approved of a measure which, if carried out by every physician and dentist in the county, will virtually put an end to professional dead beats as far as Quincy and Adams County are concerned.

The method is very simple. Each physician and dentist in the county is asked to join the Associated Credit Bureau, which is affiliated with the Retail Merchants' Association of Quincy and the Retail Credit Men's National Association. This will cost him \$25 a year. In return the Credit Bureau will open a special professional credit and collection department. Each physician and dentist will report each month his "no good" accounts. These lists will be checked and proper notations made on the records of the bureau so all retail merchants of Quincy will note the bad credit involved. In addition, the bureau will send to each professional member an alphabetic list of the bad professional credits every month. Once a year they will compile a complete alphabetic list of the professional dead beats. Physicians and dentists will also have the privilege of telephoning the bureau at any time for credit information. In addition the bureau will conduct a collection department and will collect professional bills on a 25 per cent basis (about half the rate charged by most collection agencies).

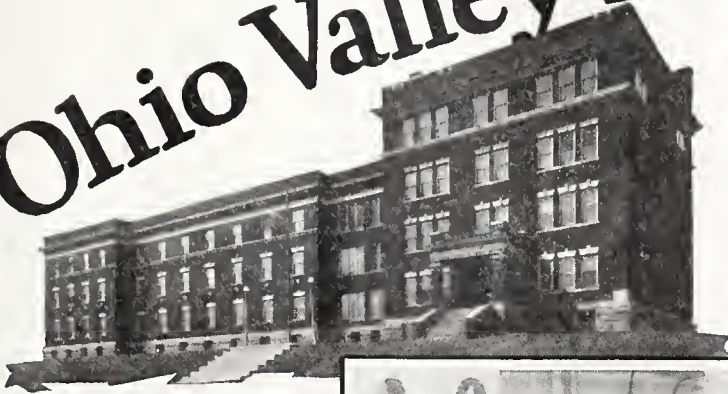
With such an arrangement as the above, every professional man has an opportunity to defend himself against bad credit. Before accepting a call, doing an operation, having himself engaged for a confinement case, etc., he can get out his "bad credit list" or telephone the Credit Bureau and ascertain the credit status of his patient. If he finds out the patient is "no good," then it is his own fault if he grants credit.

It is difficult to estimate the financial saving this service can offer the professional men of Adams County each year, but it will, without doubt, reach

thousands of dollars. It is hoped that every physician and dentist in Adams County (as well as the local hospitals) will join in the movement, for we are confident that it will prove the best "small" investment they have made in many a day. Those that "stay out" will certainly be given plenty of opportunity to develop a large practice among the "undesirable credit" type.—*Quincy M. J.*

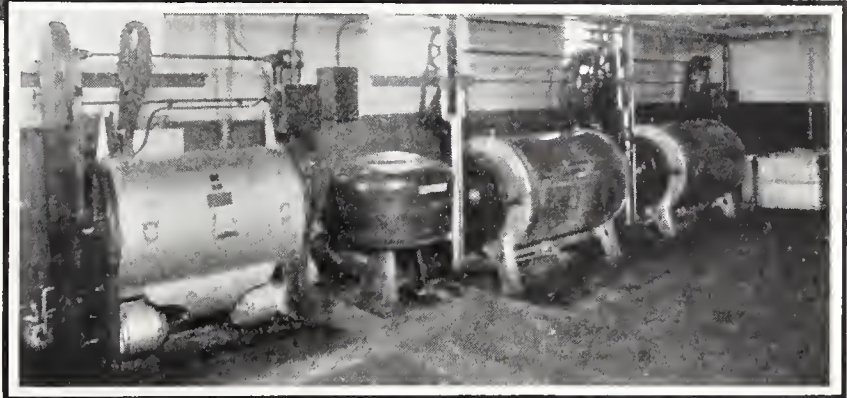
Sane Living—On a trip to Maine, the writer left a town in northern Maine at the same time a buckboard drawn by two horses left; the automobile and the buckboard had the same destination; it took the automobile two and one-half hours to make the trip—it took the horse two and one-half days to make the same trip. One could not help but wonder whether the modern age, with its rapid transportation, with its running on schedule and its general wear and tear, did not involve certain dangers to our nervous systems, as well as our digestive systems, that made the older method of traveling have many compensations. As one got away from the beaten tracks into the heart of the woods and looked out upon mountains and lakes in their calm majesty, a certain restoration of viewpoint was gained, and the peace and quiet of nature seemed to allay the hurry and worry of our modern life. Would not the physician do well to teach his patients the value of simple things, the dangers of speed, and the wisdom of a close contact with nature. If we are to continue to add years to the span of life, to gain a better sense of values and to maintain the best degree of health, isn't it time for us to align ourselves with the forces that teach a more sane living and an appreciation of the lessons provided all about us in the repose of mountains, lakes, and rivers. Then, perhaps, we can do away with some of our sleeping potions, some of our digestive mixtures, and realize that we are surrounded with the healing forces of nature if we will only avail ourselves of them.—*Rhode Island M. J.*

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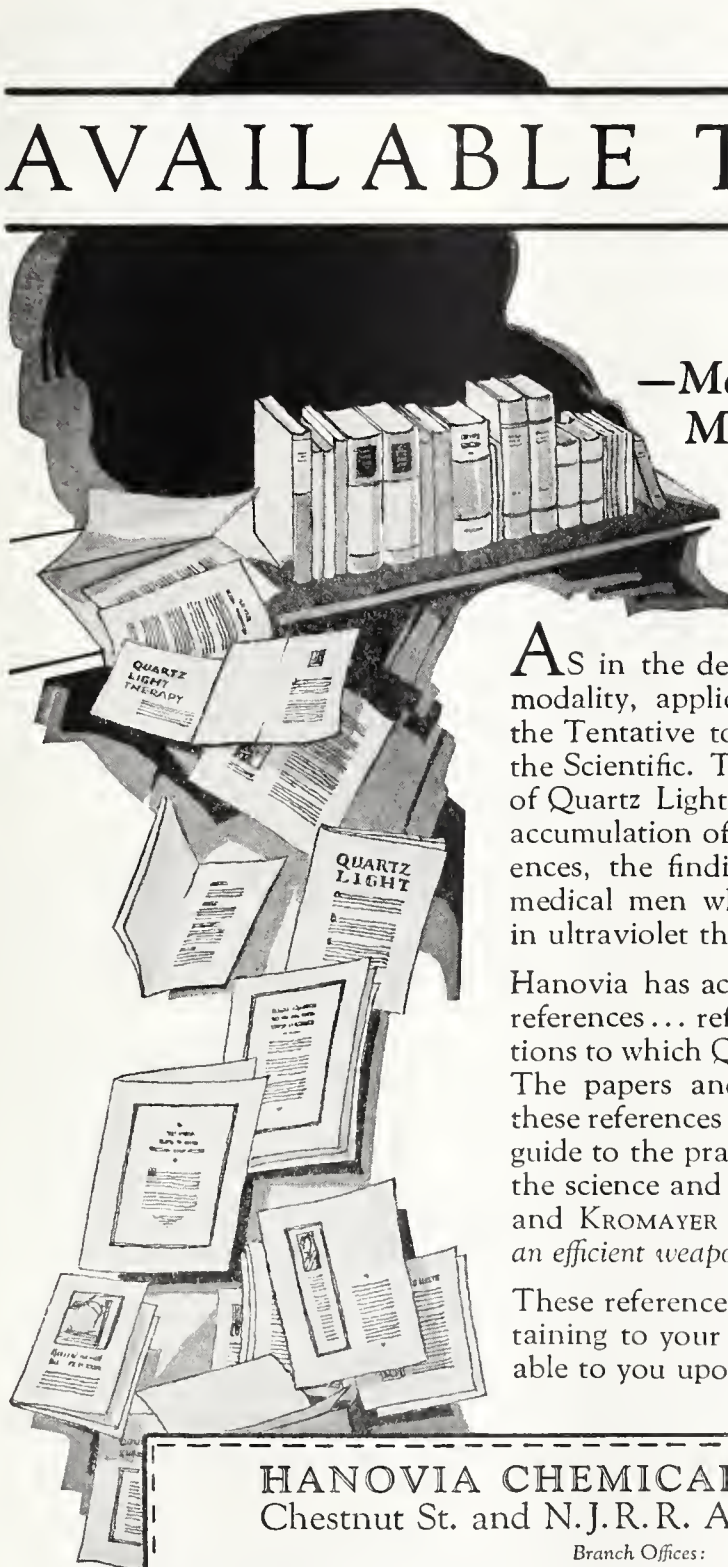
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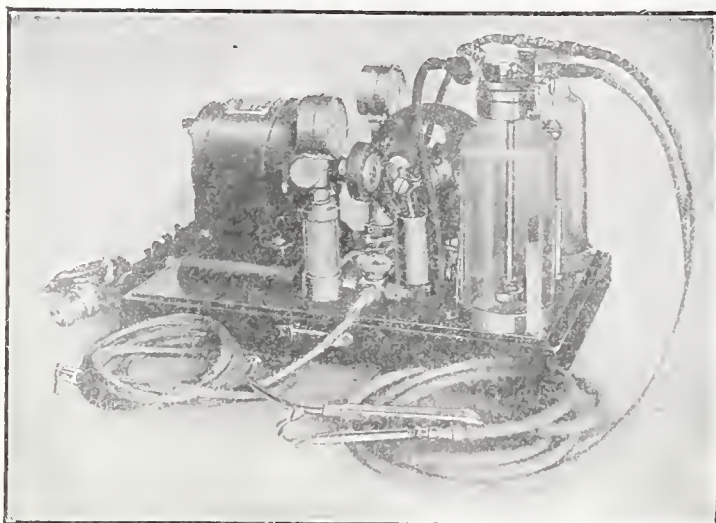
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The Quarterly Cumulative Index Medicus—The curse of recent medicine is the gigantic, senseless proliferation and prolixity of its periodical literature. It has been the despair of librarians, the enslaver of indexers, the nightmare of classifiers, the bugbear of editors, and, even in Doctor Fletcher's time, was the occasion of his celebrated witticism: "The whole world is in a conspiracy against medical bibliographers." It is a consequence of the self-determination mania which "infects the world" and the end is not yet, for there are as many "new" sciences as there are up-and-coming nations. Some day there may be minor Nobel prizes or prix Monthyon for those who decline to write unless they have something really new to say and who can state their intention in titles of telegraphic brevity.—*Canad. M. A. J.*

Italy's Assistance to Illegitimate Children—Assistance is provided by the Italian Government to illegitimate children who have been abandoned or who are in danger of being abandoned, in accordance with a royal decree issued on May 8, 1927. An allowance may be paid to the mother, or the child may be put in an institution, where he is nursed by his own mother if possible, or placed out with a nurse or a foster mother. The assistance is given only if the child is under six years of age at the time of application, and continues until the child is of legal age for employment. Provision is made for periodical examinations by qualified physicians of the children to whom this decree applies and of their nurses, and for medical treatment of all children.

The funds necessary for carrying out this decree will be supplied partly from the national treasury and partly by the provinces and municipalities. The National Bureau of Maternity and Infant Welfare will have general supervision over the administration of the law.—U. S. Children's Bureau.

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University of California Doctors Find Feather-Dyeing Bad—Industrial dyers should be thankful that women no longer require great varieties of colored feathers for their hats, because this type of work apparently leads to a disease known as polycythemia, or abnormal increase in the red blood cells, which may lead to clotting of blood in the vessels and death, according to facts recently uncovered at the University of California Hospital in San Francisco.

The discovery came about as a result of the death of a man in the hospital who, among other things, was afflicted with polycythemia, with no attributable cause except, perhaps, his trade of feather-dyeing. The combination of a comparatively rare disease with an extremely rare trade started an investigation.

A friend who had formerly been associated in the feather-dyeing business came to visit the patient one day and stated that she, too, had suffered from polycythemia several years before, but had recovered under treatment after quitting the trade.

A search of San Francisco was then instituted to examine any other feather dyers who might be found. The search revealed that, with the exception of the patient, there was only one other man following the trade in the entire city, a middle-aged Japanese. In confirmation of the hospital findings, this man, although in good health, showed a blood count of 6,000,000 red corpuscles per cubic millimeter.

Dr. Eugene S. Kilgore, who reported the case findings recently in the *Journal of the American Medical Association*, states that several poisons used in industry have been credited with contributing to polycythemia in the past. He offers as a suggestion that shaking of feathers in the air in the process of dyeing may increase the exposure of dyers to the poison of the dyes. The patient who died also had a custom of testing his dye mixtures by tasting. Neither of the other two did this.

Another corroboration of the possible effect of dye on the blood count was discovered by tracing an old

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case of polycythemia and finding that the man, while never associated with the dyeing industry, had used black hair dye frequently.—*University of California Clip Sheet.*

The Postgraduate Situation in 1937—If, within ten years, as appears to be the belief of scientists, radio will broadcast motion pictures everywhere, then we shall, instead of traveling to Rochester to see Mayo do a gall-bladder, or to Baltimore to see Dandy operate on a hydrocephalus, sit comfortably at our own fireside and see the proceedings much better than we would in any amphitheater. Instead of bringing Banting from Toronto or Crile from Cleveland we shall see and hear them in our own homes to far better advantage than we formerly did in some crowded and ill-ventilated hall on a bad night.

Radio and television are destined soon to play vastly important parts in medical education. And that education will be available to the rural practitioner as well as the city physician.—*Medical Times.*

The Foam of Mad Dogs—Many vain attempts have been made to discover why the foam in the mouth of mad dogs is such a powerful agent for the transmission of rabic virus. It has been established that the micro-organism of rabies exists only in the nerve tissues and is propagated only by them. Doctor Roux, director of the Pasteur Institute, has announced to the Academy of Sciences that Messrs. Manouelien and Viala have discovered the explanation sought. The tongue of the dog contains large numbers of nerve cells, probably tactile, immediately below the epithelium; in these, in cases of rabies, one finds a large accumulation of Negri bodies. In labioglossopharyngeal paralysis, which is associated with rabies in the dog, the dog clicks his tongue frequently against his teeth or the objects that he bites and bruises the delicate epithelium, which allows the Negri bodies to be distributed throughout the saliva.—*Canadian M. A. J.*

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Rocky Mountain spotted fever is the latest disease to succumb to vaccination. In 1924¹ Spencer and Parker announced their success in vaccinating guinea-pigs against spotted fever. In 1925,² extending their work to human beings, they developed a method of vaccination against this disease, though the germ has not been artificially cultivated. The virus is found in infected ticks (*Dermacentor* ander-

soni), and reaches its greatest concentration two to four days after the beginning of adult feeding. A potent virus cannot be obtained from the tick in the same stage in which it is infected. The production of the vaccine, which is made from an emulsion of infected ticks, depends upon a high concentration of the virus in the ticks from which it is made.

A number of people were vaccinated in the Bitter Root Valley last year, none of whom contracted the disease. By the spring of 1926, thirty-four laboratory and field workers had been vaccinated. Four cases of spotted fever occurred among them, all of which recovered. Among them was one man sixty-two years of age, the first person over fifty years of age ever known to have recovered from this disease. This success has led to the extension of the method, and already this year between three and four hundred inhabitants of the Bitter Root Valley have been inoculated.³ Since the mortality of spotted fever is high, and since we have been absolutely impotent against it in the past, this success is particularly gratifying.

Among those vaccinated are many sheep herders whose occupation compels them to spend the summer out on the plains under constant exposure to ticks. One can imagine what a great relief it must be to these men to know that they are free from the danger of contracting a disease which is more than apt to result fatally.

It will be remembered that the mortality may run at high as 90 per cent, and that five investigators, including Doctor McClintic of the Public Health Service and Doctor McCray of the State Board of Health of Montana, have lost their lives in studying the disease.—Editorial, *Am. J. Pub. Health*.

1. Public Health Report, November 28, 1924.

2. Public Health Report, October 9, 1925.

3. Announcement by Public Health Service, April 5, 1927.

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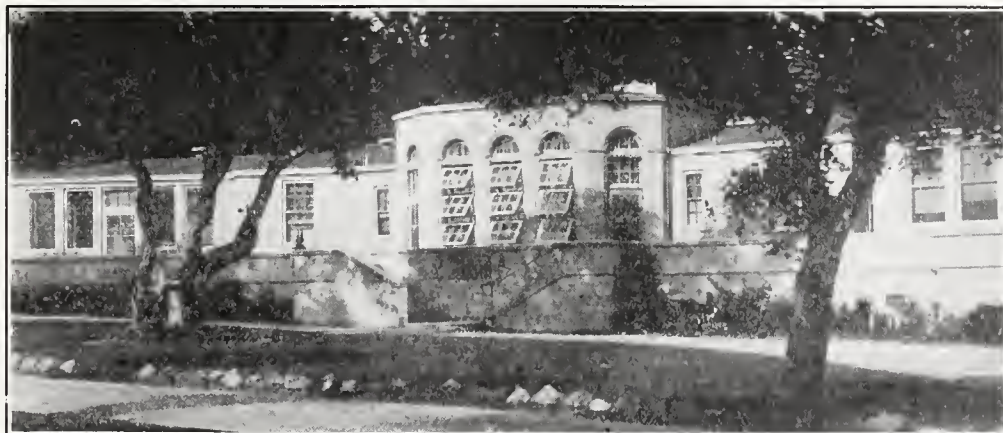
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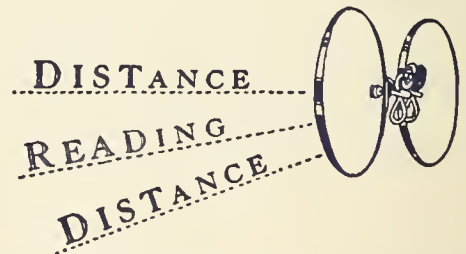
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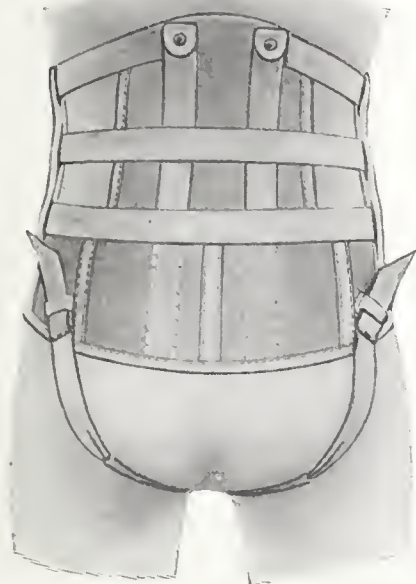
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The essential proteid elements of *three* cereals—barley, wheat and oats—are present in concentrated form in Maltine, *and in Maltine only*. It mixes readily with milk, gruel, and similar foods, making them more palatable. It is uniformly pure, always obtainable, unfailingly effective.

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Maltine Malt Soup Extract ☐
Maltine with Creosote ☐
Neoferrum, the New Iron ☐
Maltine with Cod Liver Oil ☐
Maltine with Cascara Sagrada ☐
Maltine with Pepsin and
Pancreatin ☐
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BOOKS RECEIVED

An Introduction to Clinical Perimetry. By H. M. Traquair, M. D. With 164 illustrations and a colored plate. Review copy by courtesy of the publishers, C. V. Mosby Company, St. Louis.

Special Dental Pathology. A Treatise for Students and for Practitioners of Dentistry and Medicine. By Julio Endleman, D. D. S. Second edition. With 371 illustrations, of which 318 are original, and four color plates. Review copy of courtesy of the publishers, C. V. Mosby Company, St. Louis.

Disease of the Skin. By Henry H. Hazen, M. D. Third edition. Two hundred forty-eight illustrations, including two color plates. Review copy by courtesy of the publishers, C. V. Mosby Company, St. Louis.

Diseases of the Mouth. By Sterling V. Mead, D. D. S. With 274 original illustrations in the text and twenty-nine full-page color plates. Review copy by courtesy of the publishers, C. V. Mosby Company, St. Louis.

The Normal Diet. A Simple Statement of the Fundamental Principles of Diet for the Mutual Use of Physicians and Patients. By W. D. Sansum, M. D. Second edition. Review copy by courtesy of the publishers, C. V. Mosby Company, St. Louis.

Tobacco and Physical Efficiency. A Digest of Clinical Data. By Pierre Schrumpf-Pierron, M. D. Preface by Henri Vaquez, M. D. Published under the auspices of the Committee to Study the Tobacco Problem, with a foreword by Alexander Lambert, M. D. Review copy by courtesy of the publishers, Paul B. Hoeber, Inc., New York.

The Ophthalmic Year Book. Volume XXIII. Containing Bibliographies, Digests and Indexes of the Literature of Ophthalmology for the year 1926. Edited by William H. Crisp. Review copy by courtesy of the publishers, Ophthalmic Publishing Company, Chicago.

United States Naval Medical Bulletin. Issued quarterly by the Bureau of Medicine and Surgery, Washington, D. C. Edited by Commander L. Sheldon, Jr. Review copy by courtesy of the publishers, United States Government Printing Office, Washington, D. C.

Annual Report of the Board of Regents of the Smithsonian Institution. Showing the operations, expenditures, and condition of the institution for the year ending June 30, 1926. Review copy by courtesy of the publishers, United States Government Printing Office, Washington, D. C.

Prenatal and Maternal Care. By W. E. Hunter, M. D., with an introduction by Reginald Knight Smith, M. D. Review copy by courtesy of the publisher, J. W. Stacey, Incorporated, San Francisco.

Krebs und Seine Wahre Ursache. Von J. Winkelhagen. Im selbstverlag Des Verfassers. Druck Von F. Bruckmann A. G., Munchen, 1927.

American Medicine and the People's Health. By Harry H. Moore, with an introduction by the Committee of Five of the Washington Conference on the Economic Factors Affecting the Organization of Medicine. Review copy by courtesy of the publishers, D. Appleton and Company, New York.

Appendicitis. By Hubert Ashley Royster, M. D. Review copy by courtesy of the publishers, D. Appleton and Company, New York.

Ophthalmoscopy, Retinoscopy and Refraction. By W. A. Fisher, M. D. Second revised and enlarged edition, with 260 illustrations, including forty-eight colored plates. Review copy by courtesy of the publishers, F. A. Davis Company, Philadelphia.

An Introductory Course in Ophthalmic Optics. By Alfred Cowan, M. D. With 121 illustrations, many in colors. Review copy by courtesy of the publishers, F. A. Davis Company, Philadelphia.

The Principles of Sanitation. A practical handbook for public health workers. By C. H. Kibbey. With thirty-four illustrations, including five color plates. Review copy by courtesy of the publishers, F. A. Davis Company, Philadelphia.

Troubles We Don't Talk About. By J. F. Montague, M. D. Review copy by courtesy of the publishers, J. B. Lippincott Company, Philadelphia.

The Rockefeller Foundation Annual Report. 1926. Review copy by courtesy of the publishers, The Rockefeller Foundation, New York.

Radium in Gynecology. By John G. Clark, M. D., and Charles C. Norris, M. D., with a chapter on Physics by

(Continued on Page 750)

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Orally: 8 to 32 minims three times daily. When compensation is re-established dosage should be reduced to a point just sufficient to maintain equilibrium.

By injection: 1 to 2cc. at intervals of 4 hours until digitalization is complete. To insure quick absorption and energetic action injection should be either intramuscular or intravenous.

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BOOKS RECEIVED

(Continued from Page 747)

Gioacchino Failla, M. A. Forty-nine illustrations. Review copy by courtesy of the publishers, J. B. Lippincott Company, Philadelphia.

Opium. By John Palmer Gavit, with an introductory note for American readers. Review copy by courtesy of the publishers, Bretano's, New York.

TRUTH ABOUT MEDICINES

New and Nonofficial Remedies

(Abstracts from reports of Council on Pharmacy and Chemistry, A. M. A.)

Note.—These do not represent all of the actions of the Council, but they do represent those remedies manufactured by firms who cooperate with California and Western Medicine in its advertising columns, and thereby with the physicians in California.

In addition to the articles previously enumerated, the following have been accepted:

Eli Lilly & Co.—Ephedrin (Lilly); Inhalant Ephedrin Compound (Lilly).

Parke, Davis & Co.—Erysipelas Streptococcus Antitoxin (Refined and Concentrated) (P. D. & Co.).

E. R. Squibb & Sons—Scarlet Fever Streptococcus Toxin (Squibb), 5 vial package (500, 2000, 8000, 25,000, 60,000, skin test doses); Scarlet Fever Streptococcus Toxin (Squibb), 50 vial package (500, 2000, 8000, 25,000, 60,000, skin test doses).

Diphtheria Toxin-Antitoxin Mixture, 0.1 L+ (New and Nonofficial Remedies, 1927, p. 341)—This product is also marketed in packages of thirty bulbs each containing 1 cc., representing ten immunizing treatments. Parke, Davis & Co., Detroit.—*Jour. A. M. A.*, October 1, 1927, p. 1151.

Erysipelas Streptococcus Antitoxin Refined and Concentrated (P. D. & Co.)—An erysipelas streptococcus antitoxin (New and Nonofficial Remedies, 1927,

p. 337), prepared by immunizing horses with cultures of streptococcus isolated from erysipelas. The potency of the product is declared in "units," a unit representing the amount of antitoxin required to neutralize one skin test dose of toxin. It is marketed in packages of one piston syringe containing 500,000 units. Parke, Davis & Co., Detroit.—*Jour. A. M. A.*, October 15, 1927, p. 1335.

PROPAGANDA FOR REFORM

Weldona a Piece of "Rheumatism Cure" Quackery

—In 1922 it was reported that an adult with marked jaundice was dying after continued use of Weldona tablets. At that time an analysis of Weldona had shown the presence of sodium salicylate. In 1924 an analysis showed the "Weldona Treatment" to consist of small, white tablets containing an emodin-bearing extract, and large, lavender-coated tablets containing sodium salicylate and an unidentified vegetable extractive. In 1925 the *Boston Medical and Surgical Journal* gave some case reports by Dr. Richard C. Cabot in which it was stated that a series of cases of acute yellow atrophy in patients having taken Weldona had come to his notice. In 1925 the Health Bureau of Rochester, New York, made some tests of Weldona and reported that unidentified alkaloids were found together with salicylates or salicylic acid. In 1926 the A. M. A. Chemical Laboratory found the lavender-colored tablets to consist essentially of salicylic acid and acetylsalicylic acid, extractives of an emodin-bearing drug with vegetable extractives, ground ginger and cinnamon. The medicinal part of the white tablets was found to consist of extract of cascara. Now in 1927, advertisements for Weldona are offered newspapers, and to one such paper the advertising agency handling the advertising gave the following as ingredients of Weldona: Neocinchophen, Extract of Cimicifuga, Fluid Extract of Phytolacca, Magnesium Carbonate Light and Powdered Extract of Cascara Sagrada. A commercial laboratory that analyzed Wel-

(Continued on Page 752)



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TRUTH ABOUT MEDICINES

(Continued from Page 750)

dona in September, 1927, reported that it consisted largely of vegetable matter, with about 5½ per cent of mineral matter. The vegetable matter was, apparently, jhytolacca and cascara sagrada, together with acetylsalicylic acid (aspirin) and salicylic acid. The laboratory did not satisfactorily prove the presence or absence of neocinchophen, but did report that tests for alkaloids showed none present. It seems evident from these several analyses that Weldona, like so many other "patent medicines," is a name rather than a thing—while the name has remained constant the composition has varied.—*Jour. A. M. A.*, October 1, 1927, p. 1167.

ARC Epilepsy Remedy—The medical profession has recently been widely circularized by the American Remedies Company of Rockford, Illinois. The medical profession is asked to use the firm's "Reliable Remedy for Epilepsy" and is told by the firm that it does not "feel justified" in exposing its formula—that is, the medical profession is asked to prescribe a preparation of secret composition. The A. M. A. Chemical Laboratory analyzed the ARC Epilepsy Remedy and found it to consist of capsules, each containing about 1½ grains of phenobarbital (luminal) and a considerable amount of a laxative (emodin-bearing) drug and a small amount of dye. Is it possible that there are physicians who are so gullible and forgetful of their duty to their patients that they will give a dangerous drug in unknown dosage? A physician who uses or prescribes "ARC Epilepsy Remedy," giving so dangerous a drug as phenobarbital in unknown dosage, may lay himself open to a charge of doubtful practice.—*Journal A. M. A.*, October 1, 1927, p. 1167.

Asthmolysin—Asthmolysin is, according to the advertising, "a combination of the suprarenal and pituitary hormones in distinct proportions," prepared by a "special method." There appears to be no scientific evidence to warrant the use of pituitary in bronchial asthma. Epinephrin is frequently used in some forms of asthma, but may be had pure and need not be prescribed in a secret preparation containing an undetermined amount. The 1927 Asthmolysin circular consists of testimonials from 121 physicians, of whom thirty-five are Fellows and thirty-three are members of the American Medical Association, while fifty-three are neither members nor Fellows. Such testimonials,

given for a semisecret preparation of unscientific character, are no credit to those members of the supposedly learned profession that gave them.—*Jour. A. M. A.*, October 1, 1927, p. 1170.

Concentrated Orchitic Solution (Orchitic Substance Concentrated—Cousineau) not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Concentrated Orchitic Solution, also called Orchitic Substance Concentrated (Cousineau), is marketed by the California Endocrine Foundation Laboratories, Long Beach, California. According to the label on the specimen it is "A Preparation of Orcho-Plasm Ramm Derivative," while in an advertising booklet it is stated that it "consists of the small, hard, testicular gland of the healthy, young, live goat, ram or monkey," and "contains saturation of the whole gland substance in solution ideally compounded." The Council found that many unwarranted and unsupported claims were made for the preparation and, hence, declared it inadmissible to New and Nonofficial Remedies. When the Council's statement was sent the California Endocrine Foundation Laboratories the firm submitted a proposed revision of an advertising booklet. In the advertising the general impression is given that gland implants such as those of Voronoff are highly effective, and that the manufacturer's product, administered hypodermically, will give equally good or better results. Even if the proposed revision of claims is made, the preparation is still unacceptable, for the reason that the manufacturer has not submitted any scientific evidence for the therapeutic usefulness and efficacy of the product. The Council, therefore, declared Concentrated Orchitic Solution (Orchitic Substance Concentrated—Cousineau) unacceptable for New and Nonofficial Remedies.—*Jour. A. M. A.*, October 8, 1927, p. 1267.

The A-Moy Antifat Fake—The A-Moy Company is a trade name used by one Charles E. Cessna, of whom the Chicago *Tribune* once said, he "at different times in his business career has been a loan shark, patent medicine vendor, and land promoter." Cessna's present antifat quackery consists in selling A-Moy Reducing Pills, which, according to report, have been responsible for at least one death.—*Jour. A. M. A.*, October 8, 1927, p. 1267.

Liver Diet in Anemia—While liver seems to be presenting increasing evidence of its value in the treatment of anemia, physicians everywhere are finding it

(Continued on Page 754)

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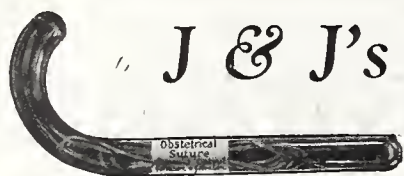
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Now you can safely tell your patients: "No stitches to take out!"

This catgut is not ordinary chromic catgut. It is **specially** chromicized to resist the absorbing action of the vaginal secretions and lochia for 7 to 10 days. It is threaded on a full-curved needle, ready for instant use; the tube may be boiled with the instruments. This suture should be in every obstetrical bag. List price, \$4.20 per dozen.

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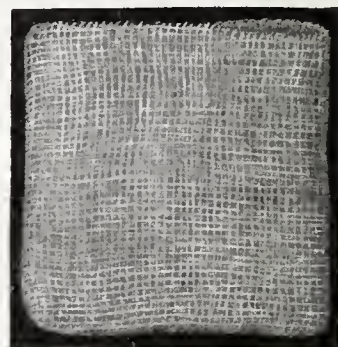
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Filmated Gauze, patent applied for. A new idea in surgical dressings, employing gauze as a vehicle for cotton, combining the high absorbency of both. But the cotton cannot be left in the wound. Sizes: small, medium, large. List prices, respectively, 80c, \$1.00 and \$1.20 per box of 25 envelopes, 3 Zobec Sponges in an envelope. The machine process makes possible this improved article and this low price.

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TRUTH ABOUT MEDICINES

(Continued from Page 752)

difficult to keep patients contented and happy while they are taking it. This state of affairs is due partly to the fact that few people can cook liver in any other way than by frying. Recipes taken from English and French sources include many ways of preparing liver for the table.—*Jour. A. M. A.*, October 15, 1927, p. 1335.

Fever-Producing Methods in Treatment of General Paralysis—Compilations have been made of the results obtained in cases of general paralysis treated with malaria. The treatment has also been applied to patients with syphilis of the central nervous system. A microscopic study of the brain following treatment by malaria leads to the conclusion on the part of the investigator that in some cases in the future the term "recovery" rather than "remission" will be justified. Relatively little has been reported during the past year concerning relapsing fever or sodoku as a therapeutic measure in neurosyphilis. It seems likely that if infectious disease methods are to persist, a contest might arise between malaria and sodoku. Possibly the inoculation with an infectious disease will not continue to be necessary in the production of therapeutic fever. Reports have been published on the production of fever for treatment in general paralysis by the use of injections of foreign protein. The method has many advantages and the few cases on record give promise of good results.—*Jour. A. M. A.*, October 15, 1927, p. 1337.

Peruna—Ancient and Modern—The Eighteenth Amendment gave a great stimulus to one branch of the "patent medicine" industry—that devoted to the exploitation of alcoholics sold under the guise of home remedies. Originally containing about 27 per cent of alcohol and very little else, the use of Peruna as a beverage in those parts of the country that were at that time nominally "dry" was notorious. Cases of



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Near but not upon the desert, this Sanatorium is exceptionally well located from an environmental and climatic standpoint. All modern, scientific methods of diagnosis and treatment are availed of fully. In addition, every effort is made to create a favorable psychical attitude, and to maintain an atmosphere of cheer and contentment.

You may feel confident that both the mental and physical aspects of each case will be carefully considered. Individualized treatment, painstaking attention to detail and personal interest, assure the maximum benefits from the Sanatorium sojourn.

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Robert W. Hartwell, M. D.

acute and chronic alcoholism, and even, in some cases, of death from its use are matters of record. In 1905 the sale of Peruna to Indians was prohibited. In the same year the Bureau of Internal Revenue classed Peruna as an alcoholic compound advertised and sold as a medicine, but without the addition of drugs in sufficient quantity to change materially the character of the alcoholic liquor. Then the formula of Peruna was changed and sufficient senna added to satisfy the Internal Revenue Department that Peruna could no longer be used for beverage purposes. At that time the alcohol content was cut down from 27 to 20 per cent. When national prohibition was enacted, the alcohol content of Peruna was further reduced to 12 per cent. Now, within the past few months, another change has taken place. The manufacturers have added 6 per cent alcohol and have taken out the senna! They have also taken out golden seal, which for some years has been one of the alleged ingredients; on the other hand they have added wild cherry, gentian and potassium iodid. The theory under which alcoholic "patent medicines" are supposed to be tolerated by the Internal Revenue Department is that they shall contain the minimal amount of alcohol possible. Just why the manufacturers of a nostrum with a history behind it such as Peruna should have been permitted to increase the alcohol content of their preparation 33 per cent is another of those mysteries that only government bureaus can explain.—*Jour. A. M. A.*, October 22, 1927, p. 1444.

Carl C. Lantz, Quack—For many years Carl C. Lantz of New York City and Atlantic Highlands, New Jersey, has been quacking it through the mails. The *Cosmopolitan* magazine for July, 1906, contained an advertisement for "The Adonis," sold at that time by Mr. Lantz, who was trading as the Lantz-Adonis Company in New York City. The Adonis was said to preserve and increase mental, physical and genital vigor. *Vanity Fair* for April, 1916, contained an advertisement of four nostrums put out by Lantz, who

Creating Joy
Create joy for yourself and others
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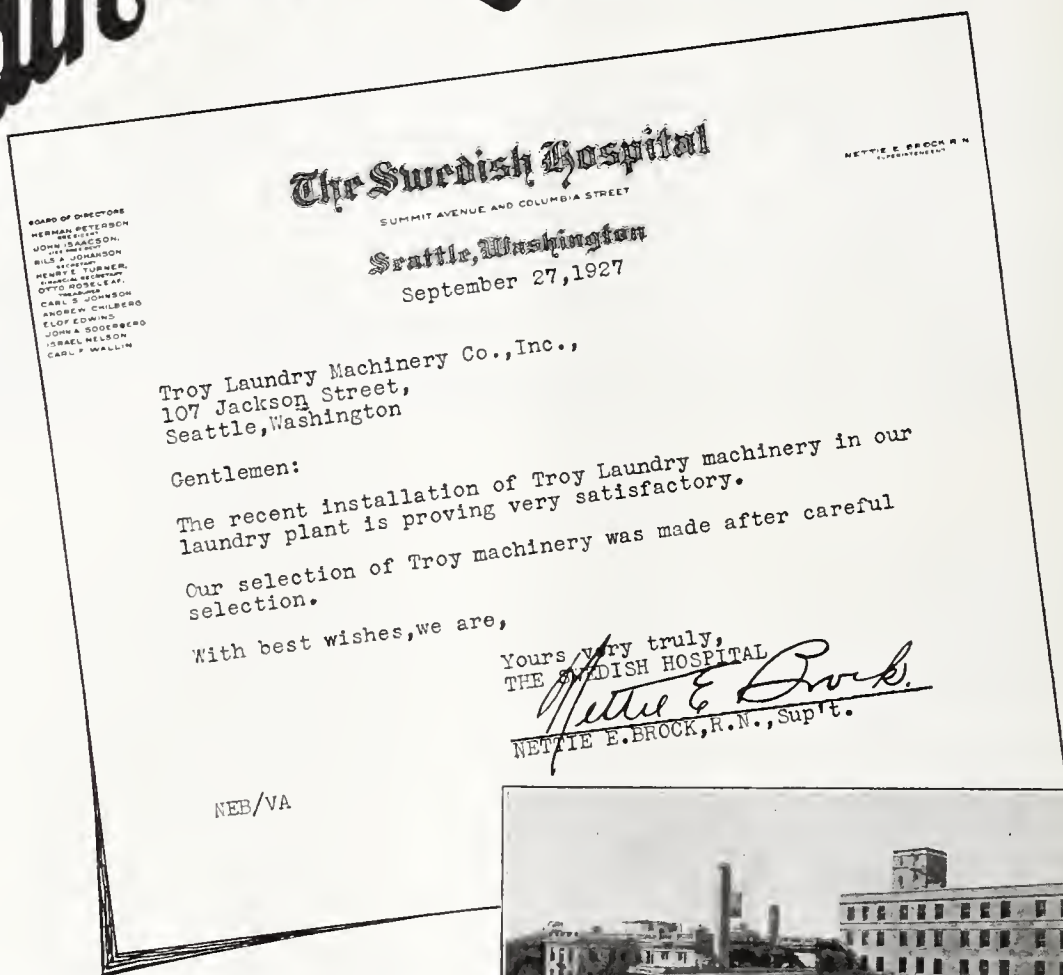
SAN FRANCISCO

at that time operated under the trade name of C. C. Lantz Laboratories. The preparations were "Lantz Face Balm," "Lantz Hair Life" "Lantz Foot Tingle," and "Lantz Riggs Remedy." In 1918 he offered "Lantz Absorbent Pastilles," which were sold as "the modern remedy for the prostate gland, the seat of sexual weakness." He also offered the "Lantz Supporter" and his "Vacuum Congestor," a device alleged to be sold as "a means to develop, strengthen and enlarge shrunken or naturally small organs." On October 10, 1927, the Postmaster General issued a fraud order against Carl C. Lantz covering both the New York and the Atlantic Highlands, New Jersey, addresses.—*Jour. A. M. A.*, October 29, 1927, p. 1534.

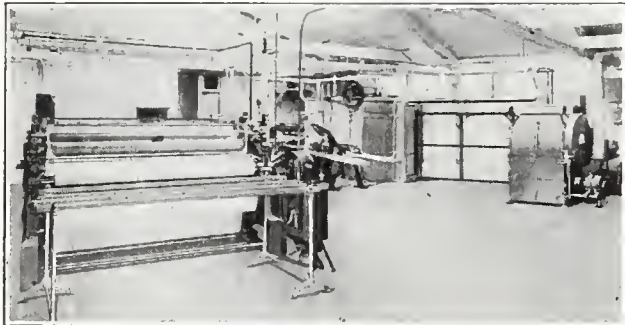
Di-Citurin—In an advertising circular this product is said to be "Mono Potassium Diacetyl Citrate" and claims are made for its action that by no stretch of even a lively imagination could seem to be inherent in a substance of such composition. The report of

(Continued on Page 764)

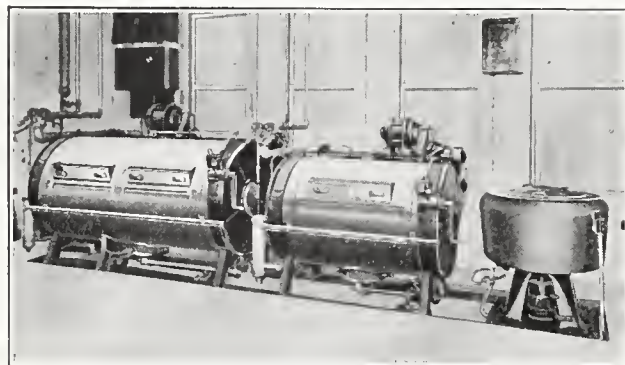
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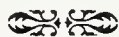
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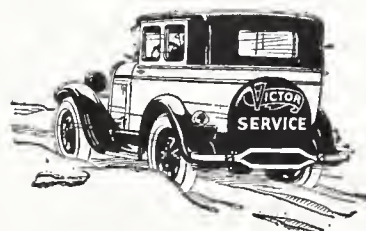
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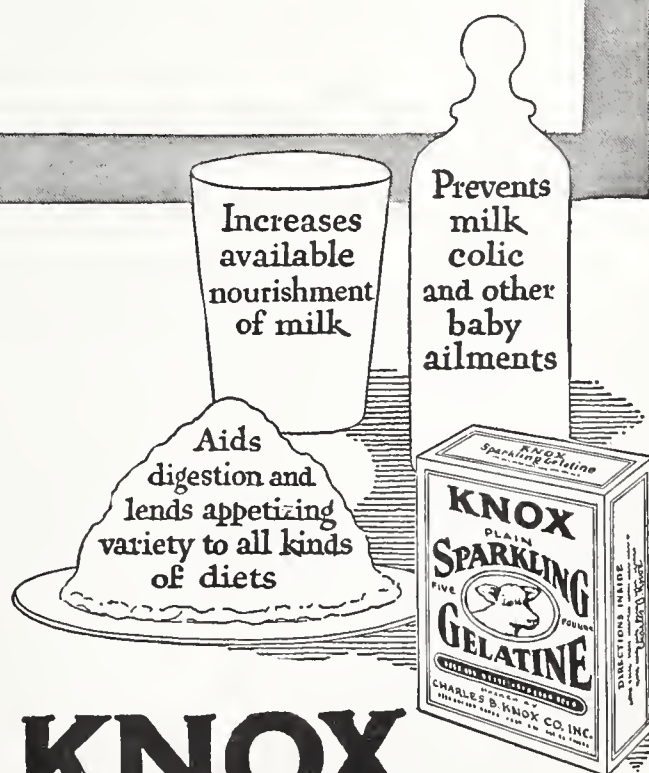
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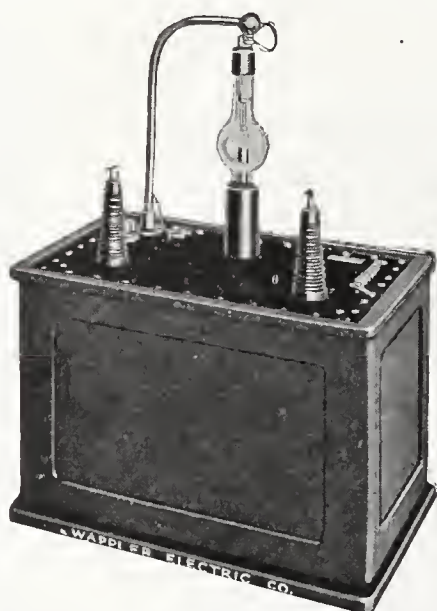
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(Continued from Page 755)

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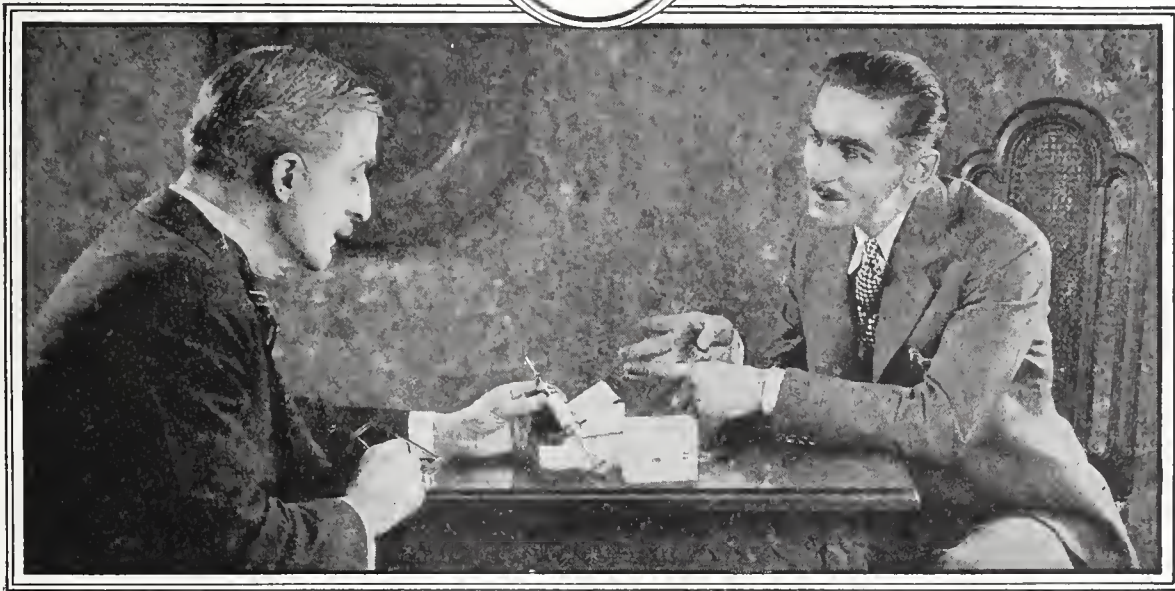
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CALIFORNIA AND WESTERN MEDICINE

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DECEMBER, 1927

No. 6

THE PELVIC FLOOR—CONSIDERATIONS REGARDING ITS ANATOMY AND MECHANICS*

By A. W. MEYER, M. D.
Palo Alto

INTRODUCTION

AN anatomist hesitates to write on the pelvic floor because the pelvic fascia has been discussed interminably. The subject is worn enough without further words. However, the treatment of it, even in the anatomies of the present day, is inadequate and the clinical literature is very confusing.

When one considers the nature of the pelvic floor of man, one really must wonder at its adequacy. It is not strange that it yields occasionally but rather that it does not do so frequently. When contrasted with the other yielding walls of the peritoneal cavity the pelvic floor, aside from the underlying tissues, certainly seems far weaker than the anterior abdominal wall or the thoracic diaphragm against which it is pitted in its resistance and response to changes in abdominal pressure. Only these three portions of the abdominal and pelvic cavities can yield materially, and since the effect of gravity in the wholly or partially, erect posture is exerted chiefly upon the pelvic floor it has to act under a special disadvantage.

Considerable protection against the direct pressure due to gravity and the downward impulses in the erect posture is obtained from the change in angle from the abdominal to the pelvic cavities. This change causes the downward pressure to fall partly on the lower abdominal wall, the ventral half of the bony pelvis and upon the soft parts lying between the descending rami of the pubes. Did the pelvic cavity lie in a direct line with the abdominal, one well might doubt whether the pelvic floor, as constituted, would be adequate in the adult. It is true that the pelvic cavity of the infant lies in almost a direct line with the abdominal, but the infantile pelvic organs are far more adherent to each other. Were it not for this fact the infantile uterus which often lies in almost a direct line with the vagina, no doubt would be prolapsed early. It is not protected against this accident by its position, for contrary to common belief and teaching it usually is wholly intrapelvic, as shown in figures 1 and 2, and never

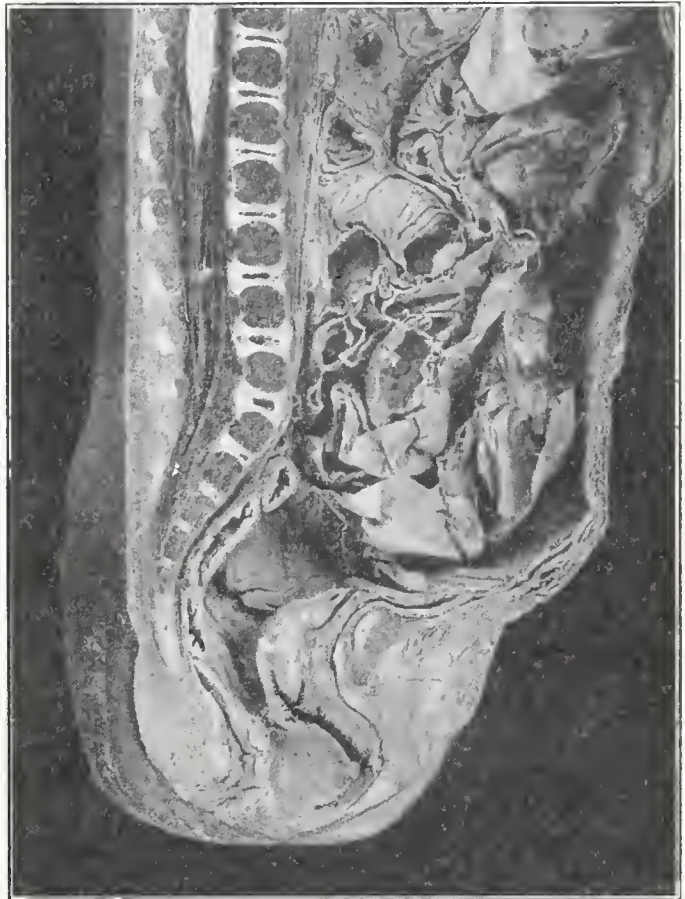


Fig. 1—Photograph of a sagittal section of the frozen pelvis of a female infant aged forty-one days.

is abdominal in position at birth. Illustrations in leading textbooks of obstetrics and gynecology which represent it as located almost wholly above the superior straight are plainly incorrect.

COMPOSITION OF PELVIC FLOOR

Strange as it may seem there is no agreement even among anatomists on so simple a question as to what structures constitute the pelvic floor. This must be surprising, and is, in fact, rather discreditable. Patterson,¹ 1907, for example, included the symphysis pubis among the structures that compose the pelvic floor. If this be justifiable then, to be sure, the entire pubic bones and the coccyx and sacrum should also be included and so should, in fact, most of the bony wall of the true pelvis. The constitution of the pelvic floor manifestly is not affected by the posture of the individual, and it would seem that it should be regarded as being composed of all the supporting structures that close the pelvic outlet. This would include the peritoneum, and the muscles

* From the Department of Anatomy, Stanford University. Part two of this paper will appear in the January issue of this journal.



Fig. 2—Photograph of a sagittal section of the frozen pelvis of a female infant aged seven months.

composing the pelvic and urogenital diaphragms with the accompanying ligaments and fascial layers.

Symington² considered the pelvic floor to include "not merely its muscular diaphragm, but the whole soft structures that close the inferior outlet of the female pelvis"; and Hart³ included the bladder, even; and Coe,⁴ both bladder and rectum. At the present time, however, few anatomists would include the skin and subcutaneous tissues and the superficial fascia as part of the pelvic floor; and I think no one would include any of the viscera, although some of them pass through it.

It has always seemed illogical to me to restrict the meaning of the terms pelvic and urogenital diaphragms to the respective musculatures alone, for the accompanying fasciae are an integral part of them. When we speak of the thoracic diaphragm we do not exclude the fascia overlying the diaphragmatic musculature, but usually also include the peritoneum, the pericardium and the pleurae, which overlie the diaphragmatic fasciae, as integral parts of it. It may seem, at first thought, that the pelvic peritoneum really does not form a part of the pelvic floor because such a conception locates the prostate and seminal vesicles and parts of other pelvic viscera within the pelvic floor itself. However, the greater part of the cavity of the minor pelvis is ordinarily occupied by the small intestine which rests upon the parietal peritoneum. Hence, the latter manifestly forms a part of the pelvic floor anatomically. Moreover, since its reflections form integral parts of the broad and so-called sacro-uterine ligaments and also play an undeniable rôle in pelvic support

it also forms part of the pelvic floor physiologically. To object to this interpretation is in effect to say that the visceral pelvic fascia, too, does not form part of the pelvic floor, for it also is reflected over the viscera, thus really placing them below or outside of it. I am aware, however, that prominent British anatomists, Smith,⁵ 1908, and Dixon,⁶ 1919, have adopted a different interpretation. Smith⁵ prefers to regard this extravisceral connective tissue as a capsule, but that does not affect the fact that it is directly continuous with the pelvic fascia. Since all the fascia is differentiated from mesenchyme it would, to be sure, be more correct to say that it is continuous over the viscera rather than that it is reflected over them. Nevertheless, the latter is a convenient term and I presume that no one would conclude that the fascia has an entirely independent origin and existence. Hence, whether we call it fascia or capsule is a matter of no importance as long as the two are directly continuous. Dixon⁶ speaks of it as a "subserosa" which again does not affect its essential character, for wherever the fascia is very thin it is difficult to identify it as a separate layer independent of the subserous connective tissue, but the pelvic fascia does not stand alone in this respect.

The skin and superficial fascia and subcutaneous tissues of the perineum had best be excluded from the pelvic floor, although the superficial transverse perineal muscles and the superficial anal sphincter and a portion of the glutei maximi probably should be included. They are very intimately associated with the pelvic floor and give it much local support. Although the skin and superficial fascia also give it some support they undoubtedly play so minor a rôle that they may be disregarded. These structures yield too easily to be of great moment in maintaining the integrity of the floor. Hence it follows that the strength of the latter must depend mainly upon the muscles and fasciae and upon the reinforcements of the latter.

RÔLE OF PERITONEUM

Dixon⁶ held that the peritoneum is a negligible factor in pelvic support. If this be correct then the support that such structures as the broad ligaments and the recto-genital folds afford also must be of little consequence in this respect, as is indeed held by some. Although the peritoneum is attached rather loosely to the pelvic wall and also is easily distended, it nevertheless is very firmly attached over considerable portions of the bladder and uterus and forms broad folds about and between these organs. It also comes into relation with the rectum, though less intimately so. Moreover it also holds the obturator vessels and nerves firmly against the pelvic wall. It is only after the peritoneum is detached that these structures are freed and that the nerves stretch straight across the lateral portion of the pelvic cavity as represented without comment in an otherwise excellent drawing by Broedel in Kelly's⁷ Gynecology, and reproduced from the latter in an edition of Morris' Anatomy.

Since we readily regard peritoneal folds elsewhere, such as the mesenteries and omenta and

the ligaments of the spleen and liver, as important agents in the support of these organs, I see no reason why peritoneal reflections in the pelvis should be regarded otherwise. Here, as elsewhere, the peritoneum is reinforced by the underlying tissues and comes into more or less intimate relations with the fascia. I am reminded that Eden and Lockyer,⁸ 1917, regard the broad ligament as only a name and state that the uterosacral and vesicle ligaments are not definite structures, but I cannot accept this interpretation. Where these peritoneal reflections meet the bladder and uterus and also the rectum they include the well-known fasciculi of smooth muscle. We also know that the peritoneum holds a distended fetal or adult bladder firmly in contact with the anterior abdominal wall, and we generally believe that peritoneal reflections do not play a negligible rôle in the fixation and support of other viscera. Surgeons also long have emphasized the necessity of high ligation of the peritoneal sac as an important factor in the cure of inguinal and femoral herniae, and it is a well-known fact that an intact peritoneum is an important factor in preventing their formation.

That the peritoneum is not a negligible factor in visceral support is splendidly illustrated by the rare cases of congenital absence of the dorsal mesenteric attachment. Although the existence of general abdominal prominence and the yielding of the anterior abdominal wall, especially in the right and left inguinal regions, in these rare cases, may be due in part to an increased distension of the small intestine which is likely to accompany this condition I doubt very much whether this is the main factor. The absence of dorsal mesenteric fusion permits the intestine to sag, thus making direct pressure upon the lower portion of the abdominal wall causing it to yield. In one case which I saw in the course of dissections, this portion of the wall was formed into prominent bilateral welts which overlay the inguinal ligaments and diastasis of the recti was very evident even below the umbilicus.

RÔLE OF THE PELVIC FASCIA

Smith,⁵ Liepman,⁹ 1914, and also others, attach lesser importance to the pelvic fascia as a factor in pelvic support, and Dixon⁶ concluded that the rôle played in uterine support by the fasciculi of smooth muscle in the region of the uterine cervix scarcely can be exaggerated. Yet it seems doubtful that these conclusions are correct. If the peritoneum and such strong portions of the pelvic fascia as the pubovesical ligaments and the tendinous arch or "white line" are negligible, then almost the entire burden of pelvic support depends upon the muscles of the pelvic diaphragm which often are very weak and not infrequently also very deficient in part. This fact is recognized by gynecologists, for Eden and Lockyer,⁸ for example, wrote that "the iliococcygeus often is vestigial and the ischiococcygeus a mere fascial remnant." Hence, if the peritoneum and the muscles and the fasciae can each in turn be excluded it

is evident that very little else remains to play the rôle of pelvic support.

Although there is no agreement regarding the matter of pelvic support it would seem that the pelvic viscera well may be regarded as supported mainly by a series of three superimposed composite slings or hammocks. The uppermost of these is a unit, and is formed by the peritoneum, the reflections of it commonly spoken of as ligaments, and by the extraperitoneal or subserous connective tissue, including the perivascular, perivisceral and perineural sheaths which reinforce it. The second sling is composed of the pelvic fascia which may be regarded as a direct continuation of the endothoracic and endoabdominal fasciae. The third is formed by the muscles.

The entire fascia on the walls and upon the superior surface of the pelvic floor should really be spoken of as endopelvic and be divided into a parietal and a visceral portion. To restrict the term endopelvic to the fascia covering the viscera is illogical and inconsistent and to apply it merely to that portion of the pelvic fascia which extends from the tendinous arch of the pelvic fascia, that is, from the "white line," downward to the viscera and over them, is as objectionable as to follow some British anatomists and call this portion the rectovesical fascia. Similarly if the term obturator fascia is used at all it should be used in contradistinction to the Basle term superior fascia of the pelvic diaphragm, and should designate only that portion of the parietal pelvic fascia which overlies the obturator internus and fuses with the fascia propria of this muscle in this area. The terms endopelvic, obturator and rectovesical as customarily used merely lead to confusion, and it would seem that such use of them should be abandoned in the interests of clearness. However, there is no agreement even among anatomists as to this. Dixon,⁶ for example, says that the pelvic fascia is not a direct continuation of the iliac fascia. The difference of opinion probably arises from the fact that it is not always possible to trace the iliac fascia as a separate layer over the entire pelvic brim, for it usually merges very intimately with the periosteum here as it does elsewhere where no muscles are interposed between it and the underlying bones. Not infrequently, however, it can be separated as a very definite layer, and when this cannot be done there is no more reason for doubting its continuity than there is for doubting the continuity of the endothoracic fascia over the ribs. The pelvic fascia also fuses very intimately with the periosteum in the region of the symphysis and indeed over most of the pelvic brim, but sometimes one can separate the transversalis fascia in the hypogastric region and follow it down past the pubes to the anterior ligaments of the bladder and thence up the latter to near or even beyond its apex. In fact, the only region in which the pelvic fascia is absent is in the median portion of the bodies of the sacral vertebra, where it attaches on each side by interforaminal digitations, as pointed out by Luschka,¹⁰ 1863.

It often is easy to demonstrate the continuity of the pelvic with the endoabdominal fascia, in

the dorsolateral region of the pelvic cavity. This always is the case when the tendon of the *psaos minor* is broad. If this muscle or its tendon with the overlying fascia is reflected the continuity of the latter with the pelvic fascia is easily demonstrated. Hence I prefer to regard the pelvic fascia really as an extension of the abdominal fascia. This also was the conclusion of Waldeyer,¹¹ 1899, and to regard it otherwise would leave the pelvic cavity, which is continuous with the abdominal cavity, without a fascial lining comparable to that in the rest of the abdominal or to that in the thoracic cavity. This would be illogical and also incorrect.

Though it varies greatly in strength in its different portions and also in different individuals, the pelvic fascia too can be regarded as an anatomic though not as a functional unit, except in a broad sense. However, it must be remembered that, like the peritoneum, it does not represent a single hammock or sling mechanically except in the sense that it is nearly a continuous layer. Downward pressure upon it as upon the peritoneum of the pelvic floor necessarily is translated into tension exerted in different directions, for it lines a rounded cavity and is reflected against the contained viscera.

This fascial hammock has a somewhat varying intimacy of attachment to the underlying musculature of the pelvic and urogenital diaphragms. Yet there is no special advantage in speaking of various portions of it by different names unless it be remembered that it is a continuous, not a composite layer, anatomically. Holl¹² and Smith⁵ do not regard the pelvic fascia as continuous with that over the *pyriformi*, but the material with which I am familiar does not support such a view. The pelvic fascia usually is very thin over the *coccygei* and the posterior borders of the latter are thickened by fusion with the strong *sacrospinous* ligaments which increases the difference in level between the *coccygei* and the *pyriformi*. The latter also are covered by a very thin fascia of their own and this fuses with the pelvic fascia, thus giving rise to confusion. Not infrequently the pelvic fascia arches over the *pyriformi*, thus giving rise to the *arcus suprapyriformis* of Waldeyer.¹¹

The pelvic fascia, which I see no reason to regard other than as a direct continuation of the *transversalis* and *iliac* portions of the *endoabdominal* fascia, firmly fuses with the *periosteum* over much of the pelvic brim and also elsewhere where nothing but *periosteum* is interposed between it and bone. It may be very thin or be reinforced in its *obturator* portion by the *aponeurosis* of the *levator ani* which, although morphologically separate, is anatomically inseparable from it. It is attached loosely to the true or fascia *propria*, of the *obturator internus*, but is thickened locally to form the *pubovesical* ligaments and the *tendinous arch* or *white line* of the pelvic fascia. The *tendinous arch* of the *levator ani* which begins higher up dorsally and near to the *obturator foramen* and joins the former on the way to the *ischial spine* as shown in figure 3, often is absent even when a strong pelvic fascia



Fig. 3.—Photograph of the left half of a dissected adult male pelvis showing the union of the upper and lower (white line) tendinous arches on their way to attachment at the ischial spine: (1) Tendinous arch of the pelvic fascia. (2) Tendinous arch of the levator ani. (3) Obturator foramen. (4) Symphysis pubis. (5) Rectum. (6) Coccyx. The bladder was reflected downward.

is present. It frequently is partial, while the *tendinous arch* of the pelvic fascia practically always is present, at least in its anterior extent where it forms the *pubovesical* or *puboprostic* ligaments.

THE "WHITE LINE"

I prefer to abandon the expression "white line" because it leads to confusion. The term is used very frequently to designate either *tendinous arch*. This probably is due to the fact that the fibers of the *levator ani* very frequently, or even more commonly, arise near the lower *tendinous arch* or *white line* instead of higher up on the lateral wall of the pelvis, near the *tendinous arch* of the *levator ani*. Much confusion exists, especially in clinical literature, regarding the *white line*, and the term is an unfortunate one. It really is a later and mistaken addition, for in the eighth edition of Quain's anatomy, Sharpey, Thomson and Schaefer,¹³ 1876, in describing the pelvic fascia merely speak of "white bands or anterior true ligaments of the bladder." But in the next edition dedicated to Sharpey, Thomson, Schaefer and Thane,¹⁴ 1882, speak of the "*arcus tendineus* or so-called *white line*." The *tendinous arch* here referred to very evidently is that of Luschka,¹⁰ 1863. The latter spoke of this *arcus tendineus* of the pelvic fascia as a broad fibrous strand or strip "*ein breiter fibröser Streifen*." Henle,¹⁵ 1866, also spoke of it as an *inwoven tendinous connective tissue strand*—"einen eingewebten sehnigen Bindegewebstreifen." The word *Streifen* as here used could be translated correctly as *band*, but not as *line*. Both Luschka and Henle used the word *arcus tendineus*, Luschka¹⁰ in 1863 and Henle¹⁵ in 1866, and their illustrations accompanying the descriptions leave no doubt as to what they described or meant.

Usually the pelvic fascia is intimately united to the *levator ani* and *coccygei* and becomes very thin as it continues over the *pyriformi*. Whenever the *coccygei* are represented largely by *aponeurosis* this fascia fuses especially intimately

with the latter and then it may be difficult to identify as a separate layer in this region. It always seemed to me that it should be regarded as extending up the pelvic viscera and as furnishing an almost complete investment for them and the pelvis. It passes between the vagina and bladder and behind the rectum and the nerves and vessels, as well as around the last group of structures, unless we wish to regard their sheaths as composed of subserous tissue independent of fascia.

Although both anatomists and gynecologists of international standing have stated that the pelvic fascia is not an important factor in pelvic support I cannot adopt this opinion. Against this view Liepman⁹ urged the fact that it cannot be palpated from the vagina and that neither rapid distension nor rapid restitution of the pelvic floor could occur if the fascia were a resisting structure and functionally important. These objections do not seem entirely pertinent to me because all living tissues such as the pelvic fascia are soft and yielding. Moreover, the well-known rigidity of the pelvic floor in elderly nullipara must, to be sure, be referable very largely to a reduction in distensibility and elasticity of the pelvic fascia with advancing age. It certainly cannot be due to increased rigidity of the musculature. Hence if, as commonly held, such an increased rigidity really exists it seems that it must be referable to the fascia. The same thing holds for the greater ease of labor in multipara, except as due to a relaxed introitus or cervix. This too must be due to relaxations of the pelvic fascia after distension in previous labors. It probably is not due to changes in the uninjured musculature even if a certain amount of atrophy of it could be assumed to follow every labor.

THE VOLUNTARY MUSCULATURE OF THE PELVIC DIAPHRAGM

The musculature of the pelvic diaphragm, which constitutes the third sling, cannot be regarded as an anatomic unit. This musculature can be resolved into three successive and closely related slings each of which is composed of a pair of bilaterally placed muscles. From the symphysis posteriorly these slings are formed by the pubo-, ilio- and ischiococcygeal muscles. All three slings lie in different oblique planes with the direction of the fibers changing from a sagittal to an almost transverse direction, as the ischial spine is approached from the region of the symphysis pubis. All take their origin from the pelvic wall, enclose the vagina and rectum, and insert at the midline, into the perineal and coccygeal raphe and into the coccyx and sacrum.

In the female the medial borders of the first and best developed sling, that formed by the pubococcygei, embrace the urethra, vagina, and the rectum. Since the medial borders of these muscles extend in a parallel direction it is evident that the interval between them can easily be increased when any of the structures which normally prevent their separation are injured. This pair usually forms by far the thickest portion of the pelvic diaphragm.

Although the next or more posterior sling, that

of the iliococcygei, has more transversely directed fibers arising from the lateral walls of the pelvis and inserting similarly as the previous sling, their efficacy in pelvic support also depends especially upon the integrity of their attachments in a midline. They usually are very thin, however.

The third sling formed by the ischiococcygei differs from the previous two in that its fibers extend almost in a transverse plane, that they have bony attachments at both extremities and that portions of their musculature frequently are replaced by tendinous strands.

Since the paired, bilateral muscles composing these three slings vary greatly in their development, not only the strength, but also the continuity of this portion of the pelvic floor varies correspondingly. The ilio- and ischiococcygei are especially variable and may be represented by aponeuroses throughout a considerable portion of their extent. Hiatuses may occur not only between these successive muscular slings of the pelvic diaphragm, but also in the aponeuroses of the iliococcygei. Not rarely a crescentic defect in this aponeurosis exists on the lateral wall of the pelvis. Through it a hernia may easily enter the ischiorectal fossa at its apex. The hernial sac in such a case would, of course, be composed of peritoneum and pelvic fascia.

It seems not improbable to me that the yielding of the pelvic floor under strain may be a factor in the production of these hiatuses and also in the production of anomalous arcus tendinei. As already stated the obturator portion of the parietal pelvic fascia not infrequently is extremely thin and if the levator ani has a lower origin from the tendinous arch of the pelvic fascia, undue tension upon this portion could easily cause a separation between the superficial fascia of the pelvic diaphragm and the obturator portion of the parietal pelvic fascia, thus producing the hiatus which Luschka¹⁰ thought was always present. This hiatus has in clinical literature been referred to as the hiatus of Schwalbe, but I have been unable to ascertain the justification for this. It is purely potential, to be sure, and herniation could not occur through it unless tension on the aponeurosis separated its crescentic border from the obturator internus, thus permitting pelvic pressure to form a peritoneal pouch and force it down into the ischiorectal fossa.

Since the pubo- and iliococcygei insert into a median tendinous raphe as well as into the coccyx and sacrum, injury to this raphe must very seriously affect their ability to sustain downward pressure. Hence the support of the pelvic organs would then devolve almost wholly upon the superior fascial layer and ligaments, and upon the peritoneum, including the extraperitoneal (subserous) connective tissue.

121 Waverley Street.

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EXTRA-ARTICULAR FUSION OF THE TUBERCULOUS HIP JOINT*

By JOHN C. WILSON, M. D.
Los Angeles

DISCUSSION by L. C. Abbott, M. D., *St. Louis, Missouri*;
Fraser L. Macpherson, M. D., *San Diego*; Harold H.
Hitchcock, M. D., *Oakland*.

TUBERCULOSIS of the hip joint in children has never responded heretofore to surgical intervention, and conservative management has not yielded encouraging results. The followers of Rollier may disagree with such an assertion, but the fact remains that cases of recovery with motion are not often seen. A certain percentage of the hips treated with traction, sunshine, and ideal surroundings become ankylosed in from three to five years; but the majority only obtain a fibrous ankylosis which allows periods of recurring disability and resultant invalidism.

HOW JOINT TUBERCULOSIS HEALS

The structural changes occurring in joint tuberculosis during the process of healing have been the subject of much discussion, but it will be assumed that true healing takes place only after complete fixation of the joint by osseous fusion. It is possible that the reported cures with motion were in reality nontuberculous joints. The marvelous results reported by Rollier are well known, but since tissue examinations or biologic tests have not always been made in these reported cases of cure with motion the results are of questionable value. A positive diagnosis of joint tuberculosis cannot be made from a study of x-ray plates in the early stages of the disease. Aspiration of a suspicious joint will often yield fluid for animal inoculation or, if this is unsuccessful, excision of tissue for histologic examination may be made with safety. An infected animal presenting characteristic changes in the tissue after inoculation

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Case 1, Figure 1—Tuberculosis of hip joint in child of three and one-half years of age. Note the lack of definition about the hip joint.



Case 2, Figure 1—Tuberculosis of the left hip, of one year's duration.

furnishes evidence upon which a diagnosis of tuberculous joint disease may be made.

After conservative treatment extending over a period of three to ten years in childhood, quiescence may take place, only to be followed by a lighting up of the disease in early adult life from slight trauma. Remission of symptoms must not be confused with a cure.

Study of anatomic material in the Warren Museum will convince one that the untreated case, although healed with deformity, at times exhibits a consolidation of the femoral head, neck, and possibly of the trochanter with the ilium.

For many years efforts have been made to produce fusion of the hip joint surgically in both children and adults. This has been done for the most part by an erosion of the articular cartilages of the ilium and femur. A fusion rarely follows, and the patient is subjected to the danger of dissemination of infection. In a child the added



Case 1, Figure 2
Four months after extra-articular fusion. The graft may be seen in position.



Case 1, Figure 3
Six months after extra-articular fusion. Marked increase in the density of the graft may be seen. Clinically the hip is solid and the child walks without pain.



Case 2, Figure 2
Tuberculosis of the left hip after four years of conservative treatment. Note extensive involvement of head of femur and ilium.



Case 2, Figure 3
Six months following extra-articular fusion. The symptoms have entirely disappeared.

danger of interference with the epiphysis is always present.

ANKYLOSING OPERATION OF HIBBS

The idea of treating tuberculosis of the hip by an ankylosing operation which did not involve the joint proper originated with Hibbs. He has devised a successful fusion, and has reported a number of cases at the last meeting of the American Orthopedic Association at Atlanta, which gave definite roentgenologic evidence of fusion. His method consists in a denudation of the neck of the femur with implantation of a section of the great trochanter into the ilium. The approach has been subperiosteal, so that a reposition of the soft tissues allows the periosteum to come in contact with refreshed bone and a solid osseous mass is formed.

ILIO-FEMERO-PLASTY

A splendid fusion may also be obtained by what we have chosen to call ilio-femero-plasty. Through the Smith-Peterson approach, which consists of an incision along the iliac crest and a subperiosteal reflection of the gluteus medius and minimus outward, the capsule of the hip joint is exposed. The capsule is incised parallel with the neck of the femur and freed from its attachment to the superior margin of the acetabulum. The

great trochanter is then exposed subperiosteally and split away from the shaft with a broad, flat osteotome. With a thin osteotome a fan-shaped flap is then cut from the lateral surface of the ilium. The greatest width of the flap is at the iliac crest, and by introducing the osteotome under the outer cortex, it may readily be passed downward to just above the margin of the acetabulum. In this way a large plate of bone may be bent downward and slipped into the fissure in the femur. The periosteum of the ilium is then sutured and the ground is laid for a firm fusion by the formation of a bony block which corresponds roughly in shape to the projected line of the femur, the ilium, and the femoral neck. The rapidity with which consolidation in this area takes place is rather surprising, and the ossification of the diseased area is even more startling.

After Care—In the beginning it was our custom to put these hips up in about 10 degrees of abduction in the line of the body. Doctor Hibbs has put all his cases up in 15 degrees of abduction and 30 degrees of flexion. In our later cases this position has been adopted.

A plaster shell should be prepared for the child prior to operation (Hibbs) even though an anesthetic is necessary to obtain the desired position. This shell is thoroughly dried and is applied while

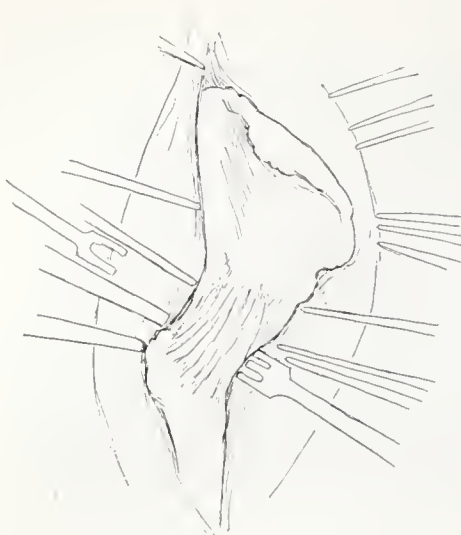


Figure 1
Showing relationship between
ilium, trochanter, and capsule of
hip joint.

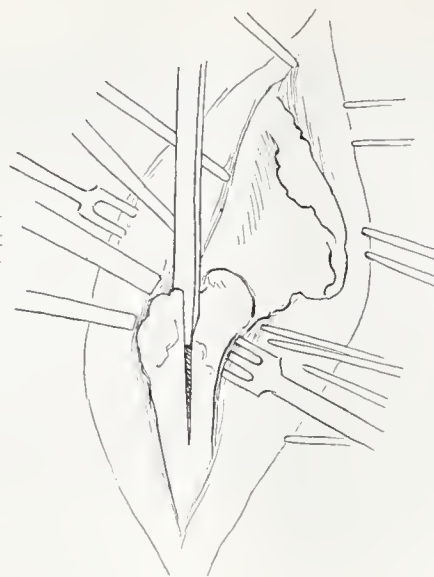


Figure 2
Showing trochanter and shaft
of femur being split.



Figure 3
Method of cutting osteoplastic
flap from external table of ilium.

warm. Shock, due to operation, and reduction of body temperature from a wet cast is eliminated. As a rule these subjects are not the best surgical risks, but are able to withstand an operative procedure that does not extend over a period of more than forty minutes. The first cast is worn for twelve weeks. If clinical fusion has taken place at the end of this time a short plaster spica is applied and the child is allowed to bear weight. Protection of the hip is carried out until clinical and roentgenologic fusion have been obtained.

Joint tuberculosis is a constitutional disease in every sense of the word, and heliotherapy, rest, and good food are in large measure responsible for success with these cases.

This type of fusion has been used in a number of adult cases. Consolidation is not so rapid, but in the end the results are eminently satisfactory. The presence of abscesses or sinuses is no barrier to this operation. The incision should avoid sinus openings and tracts. After closure the operative wound is sealed with collodion, and the sinuses are left in *status quo*, so that they may be dressed through the windows in the plaster. We have had no postoperative deaths, or cases of postoperative infection.

This technique of joint fusion is applicable to any case in which joint fusion is desired, as in osteoarthritis, and congenital dislocation of the hip, or ununited fractures of the neck of the femur.

1136 West Sixth Street.

DISCUSSION

L. C. ABBOTT, M. D. (Shriners' Hospital, St. Louis, Missouri)—Doctor Wilson has called our attention to the great difficulty of making a diagnosis of tuberculosis of the hip joint from the history, clinical examination, and roentgenograms. In a considerable number of the cases we can probably arrive at an accurate diagnosis from this data, but there is a very increasing group of patients which are doubtful and can be correctly diagnosed only by animal inoculation or by removal of tissue for pathologic study.

In our cases at the Shriners' Hospital for Crippled Children we have been surprised to find how often we were wrong in the diagnosis of joint disease. This

has led us to more frequent exploration with removal of tissue for examination. In some of the cases where the symptoms and clinical findings were typical for tuberculosis we have found a pyogenic infection. It is well, therefore, where there is any question to check up our clinical findings with laboratory examination.

As to conservative treatment of a tuberculous hip joint, our experience has been similar to that noted by Doctor Wilson. While a tuberculous hip may become quiescent through rest, fixation, fresh air and sunlight therapy, it is seldom that one sees a case with definite bony fusion. In my experience a quiescent, tuberculous hip shows a few degrees of motion or the ankylosis is of the fibrous type. Cases of tuberculosis with bony fusion are usually seen where there has been secondary infection. I am in entire accord with Doctor Wilson, therefore, in his belief that operation should be more frequently advised.

I think it is now generally recognized that the extra-articular method of fusion is the one to be adopted for reasons which Doctor Wilson has already stated. Doctor Wilson's method is an ingenious one, and I have had occasion to use it since he described it to me himself. His operation is less difficult than the trochanteric arthrodesis described by Hibbs and the results are very much the same.

I think it is important to emphasize here that too much importance cannot be attached to the pre- and postoperative care of these patients. While we are coming to believe that we cannot depend entirely on fresh air and sunlight for a cure of a tuberculous joint, yet we do know of its great value in building up the resistance of the patient to his infection. We are also coming to realize more and more, therefore, the importance of giving a thorough preliminary course of complete rest, immobilization, and sunlight therapy. Furthermore, following operation, this valuable method in promoting general improvement of the patient and therefore enabling him to fight off his disease is of the very greatest importance.

The results of the operation shown in the photographs are excellent, and I feel that Doctor Wilson is to be most highly commended for developing this method of extra-articular fusion of the joint.

FRASER L. MACPHERSON, M. D. (First National Bank Building, San Diego)—Doctor Wilson's emphasis on the importance of making a correct diagnosis and then early fusion of our cases of tuberculosis of the hip joint seems to me to be the most rational treatment.

Only by animal inoculation or by removal of tissue for pathological examination can diagnosis be made correctly.

Doctor Wilson should be highly complimented in giving us an easier and better method for extra-



Figure 4
Plastic flap of ilium ready to be turned down. Method of reflection of capsule demonstrated.



Figure 5
Osteoplastic flap in femoral cleft.

articular hip fusion. By early fusion we are saving our patients years in getting well and also insuring against relapse.

I had the pleasure of seeing Doctor Wilson's patients recently at the American Orthopedic Association meeting, and the results are excellent.

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HAROLD H. HITCHCOCK, M.D. (1904 Franklin Street, Oakland)—I wish to thank Doctor Wilson for this method of extra-articular fusion of the hip which he has worked out. To me it is much more simple to do than the procedure of Doctor Hibbs. The more simple the procedure of fusing tuberculous joints becomes the more often it will be done, for fusion carries the only real assurance that these joints will stay healed.

The extra-articular method is certainly by all odds the best that has been produced, and again I wish to thank Doctor Wilson for having simplified that operation in the hip.

I would like to ask Doctor Wilson if he has much difficulty checking the bleeding from the ilium after having cut his graft and turned it down.

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DOCTOR WILSON (closing)—An extra-articular fusion would of course not be indicated unless a diagnosis of tuberculosis of the hip joint is unquestionable. Many of our cases have been subjected to animal inoculation of tissue from a suspected joint. Peri-articular tissue removed at the time of operation has shown positive microscopic and biologic evidence of tuberculosis in our cases.

In answer to Doctor Hitchcock's question concerning hemorrhage from the ilium I would say that there is no bleeding from either the flap or the denuded surface of the ilium which cannot be readily controlled with pressure.

New School of Speech-Reading in the West—Alhambra, California, has recently been added to the list of cities having classes of speech-reading in the evening public schools. Miss Marian J. Anderson, who has classes also at Monrovia and Inglewood, is in charge.—*Volta Review*.

CHOLECYSTOGRAPHY*

By R. G. VAN NUYS, M.D.
Oakland

DISCUSSION by C. G. Reynolds, M.D., Folsom; A. C. Siefert, M.D., Oakland; Fletcher B. Taylor, M.D., Oakland.

IN presenting this subject before a group of radiologists I shall be able to omit preliminary remarks, and shall refer to the literature only as it has direct bearing on the points I wish to emphasize.

ORAL ADMINISTRATION

We began to use cholecystography through oral administration of the Graham dye in June, 1925. This was given in various ways, viz.: pills, salol-coated capsules, a small capsule of dye placed in the larger capsule containing sodium bicarbonate, and finally in a specially prepared keratin-coated capsule. On reviewing the records of the first hundred cases examined by the oral method we find that about 50 per cent had symptoms of nausea, headache, and diarrhea. We soon realized that the tetraiodophenolphthalein when given by mouth is a gastro-intestinal irritant. Often there were undissolved pills or capsules in the colon, and when the hepatic flexure was high in hypersthenic individuals the dye shadows in the colon obscured the gall-bladder shadow. In the normal cases it was a great pleasure to visualize distinctly gall bladders on which before, we had to spend much time on exposure and much more time scrutinizing numbers of films from every angle. Blaine tersely says, "The percentage of correct diagnoses was formerly in direct proportion to the skill of the roentgenologist as a guesser."

INTRAVENOUS METHOD

There were certain of these oral cases where we found faint concentration which we determined to check by intravenous administration. We recall that the administration of salvarsan was once regarded as a hospital procedure, but that now this kind of intravenous medication is generally given in offices. We felt that if the method was to have general use it must be so modified that it could be used routinely in office practice, as many patients will not go to the hospital for such a procedure. We equipped our offices with adequate apparatus, with rest rooms, and hypodermics for combating the expected reactions. We soon found that no or very slight reactions were encountered and that many of the cases which were doubtful after oral administration of the Graham dye were much more definite and satisfactory of interpretation after intravenous injection. In over a hundred of these intravenous administrations in our offices, I have had only one untoward reaction of any consequence. This patient had previously had an unpleasant experience with capsules. She said to me as I gave the injection, "Why did you not give it this way before? It is much nicer." Just after I had withdrawn the needle the pulse quickened and she

* Read before the Radiology Section of the California Medical Association at the Fifty-Sixth Annual Session, April 25-28, 1927.

became nauseated and vomited. The pulse, however, quickly returned to normal and the hypodermic was not necessary. She changed her mind; but this patient is the only one who has tried both and prefers the oral method. With this patient I was using 3 grams of the dye in 50 cc. of distilled water. After this experience I have been using 2.5 to 3 grams of the tetraiodophenolphthalein dissolved in 120 cc. of freshly doubly distilled water sterilized. The gravity method with physiological saline solution into the vein before and after the dye is used and occupies about twenty minutes for the injection of the dye proper. An evening meal containing some fat and protein, such as the meal suggested by Stewart: thick soup, creamed chicken, soft-boiled eggs, baked potatoes, bread and butter, and a glass of milk is recommended. The patient is given proper instructions and told to take a saline soda enema before retiring so that a thorough cleansing of the colon can be hoped for. Rigid fasting is insisted upon after the evening meal and until the patient reports at the office about nine the next morning. He is allowed to rest lying down for at least one-half hour after injection, and is then at liberty to go home and rest for four and one-half to five hours, when he returns for examination. If a satisfactory shadow of good concentration is obtained at this time, further concentrating time is not given, and he is asked to obtain a meal rich in fat. Two hours after he returns for further roentgen exposures. Tolysin, as suggested by Spurling and Hartman, was tried a dozen times with no marked difference in concentration noted. A few times we have given the dye before leaving the office at 6 p. m. and have let the patient fast until the morning hour. In other cases we have given the dye in the evening after dinner. With the latter methods the peak of concentration is reached, but since the method first outlined is satisfactory, there seems no reason to upset routine office hours. Practically all of our patients come for a complete gastro-intestinal study, and we feel that our work is incomplete if the gastro-intestinal examination does not immediately follow. This gives us an opportunity to observe for forty-eight hours the complete disappearance of the dye and to obtain indispensable gastro-intestinal evidence. We have tried in many cases, without success, to wash out the dye excreted from the liver by high enemata.

INTERPRETATION

Interpretation is often not difficult—the functions being either what we now consider normal or frankly pathological. By the latter we mean no, or faint, concentration after intravenous; calculi outlined; diverticulæ; adhesions, etc. With McVicar, I feel that data should be collected with respect to two important facts:

1. Whether a diseased gall bladder may sometimes fill with opaque bile.
2. Whether the gall bladder which fails to fill is always so seriously diseased as to warrant its surgical removal.

He regards the most important limitation to

its clinical use the fact that in obstructive jaundice the opaque dye is not excreted.

Regarding the first question, I have been interested in those gall bladders which show fairly good concentration and contract very well but which appear rather flabby and often have a large cystic duct and which are found to retain the dye twenty-four, forty-eight, or even seventy-two hours after injection. I have films illustrating such a case which would seem to be pathological in spite of showing fair function. The reappearance of the gall-bladder shadow may be due either to delayed excretion or to reabsorption of the dye from the intestine. Where there is a normal concentrating time I feel that the reappearance of the shadow is due to reabsorption. Persistence of the shadow, however, to forty-eight hours and longer is probably pathological. I have come to feel that with our method, visualization of a gall bladder at twenty-four hours is the rule rather than the exception. I have not kept a record on all our intravenous cases, but in twenty-five recent cases which had fairly normal function I find over 80 per cent had a good gall-bladder shadow at twenty-four hours; about 50 per cent had a shadow still at thirty hours, and only a few are recorded as having a forty-eight hour retention. Two or three had a seventy-two hour retention. These observations will have to be checked up on many normals before their entire significance is appreciated. We have all seen fair function in gall bladders containing stones.

In regard to his second question, there are many who unhesitatingly affirm that the gall bladder which does not show normal concentration will not return to normal. Sherwood Moore in a recent article in the *Medical Journal and Record* says that we have "no reason to believe that pathological indications change to normal." He backs this observation by examination of excised gall bladders which he finds infected and feels that they could never return to normal. These observations bear much weight because they are based on a large number of cases examined by cholecystography, and also after operation. I feel that where there is no, or a faint, shadow on first examination, these cases should be checked, especially if the oral method is used. We have checked a few and found normal function after doubtful findings with the oral examination. We made one interesting observation on a female patient who had indefinite dyspeptic symptoms. Her gall bladder did not fill by what we regarded as a satisfactory oral administration. She faithfully carried out a medical régime for one year and the test was repeated again, using the oral method. She was feeling much improved in every way, and this time the cholecystograms showed normal function. I related this case to Sherwood Moore. He thought it possibly compatible with a diseased organ which recovered its function. Without the intravenous check following the first examination no conclusion can be drawn.

Regarding jaundice, which McVicar states is the most serious limitation to its clinical use, many writers have given jaundice as a contraindication. It is not a contraindication because of

obstruction. Copher found the toxicity increased only 25 per cent after ligating the common duct in dogs. The reason described by Graham, Moore and others, is that when the common duct is obstructed there is distention and increased tension and dilution of the bile with mucus. This increased tension does not allow the bile to enter the gall bladder. Sherwood Moore states that there is no need of the test in frank cases of cholecystic or biliary disease. Sydney Lang states that in jaundice the gall bladder never outlines with the dye regardless of the cause of the jaundice. As an exception to this last statement we had a case of an old lady with deep jaundice to whom we gave the dye orally. The gall bladder was outlined and numerous small, negative shadows were seen. The cystic duct could also be seen and was long and tortuous. At operation, the gall bladder as well as the common duct was found to contain stones. That the test is not necessary when there is frank cholecystitis, I shall cite the case of a man who had some jaundice plainly seen in his skin and sclera. The clinician strongly suspected biliary disease. Intravenous dye revealed normal function, and his jaundice was probably hemolytic in origin. According to McNee, jaundice may be caused by excessive hemolysis, toxic or infection action of the liver epithelium, the administration of certain drugs or obstruction of the bile passages. The dye then is often an aid in differentiating different types of jaundice.

As Graham has said this test is in its infancy, and as progress has been made with the barium meal, so it will be with this method. I think we should be on the alert to add any data which will increase its diagnostic accuracy. As it was necessary to examine a large number of healthy, young adults to fix a standard for the "position of the stomach, liver, and colon," so I feel that a series of normals should be examined to fix this standard for normal gall bladder interpretation. To this end I have started a series of gall-bladder examinations in the state prison of California where there are a large number of physically healthy adults of all ages. We have uncovered some very interesting findings in respect to blood pressure following the dye, but much more work will need to be done on this before any report can be made.

While I feel strongly that the intravenous method is generally preferable, I also feel that in some cases the oral method may be preferable. The clinician and the roentgenologist together can decide whether there are contraindications to the use of the intravenous. The final choice must often rest with the roentgenologist. If he finds a nervous, apprehensive patient with small veins, or with myocardial symptoms, it is usually better to try the oral method.

SUMMARY AND CONCLUSIONS

1. The Graham method of cholecystography has added greatly to our diagnostic accuracy, but the test is still in its infancy and further data will aid in clearing up some important questions.

2. The intravenous method of administration, if

carefully performed, is more dependable than the oral and is a safe office procedure.

3. The choice of method should in the last analysis rest with the thoughtful radiologist, whose duty it is to make this delicate test an indispensable adjunct to the clinician for the accurate diagnosis of gall-bladder disease.

1624 Franklin Street.

DISCUSSION

C. G. REYNOLDS, M.D. (State Prison, Folsom)—Doctor Van Nuys has covered the ground very thoroughly in discussing the merits of oral and intravenous methods of administering dye.

During the past eighteen months Dr. O. S. Cook of Sacramento and myself have been working up the relative merits between oral and intravenous administration, also the methods of oral administration. We have at present 150 patients that have had their complete series, both oral and intravenous, and seventy of these have come to operation.

I shall not include in my discussion those who have not come to operation.

We have found that there are fewer reactions with the plain gelatine capsule given with soda than when the keratin-coated capsule is used. We have had 32 per cent reactions in the oral administration, whereas with the intravenous administration we have had a little less than 2 per cent reactions.

After a light supper in the evening 3 grams of dye in capsules was given with soda at 9 o'clock at night. The patient fasted until the pictures were taken at 9 o'clock the next morning. Immediately following the picture a fatty meal was given; and an hour following the meal, another plate was taken to determine the amount of dye remaining in the gall bladder. The same routine was used when the dye was given intravenously, and Doctor Van Nuys's method of administration followed, except that we administered 3 grams of dye in double-distilled water, and did not wash the vein out with normal salt after the administration. We find this is less complicated, and have had only two cases in which there has been any sign of trouble. In these two cases the veins showed a brownish tinge at the site of injection which cleared up in a few weeks and at no time gave symptoms except discoloration. In the seventy cases, when our diagnosis was confirmed at the operating table, intravenous injection was found to be 34.4 per cent more efficient than the oral administration. We have also concluded that the intravenous method, as Doctor Van Nuys has suggested, is a safe office procedure, and less expensive than hospital procedure for the patient. At no time have we found that drugs were necessary to ward off the collapse or discomfort of a patient after intravenous administration.

The two facts that Doctor Van Nuys considers important: (1) "Whether a diseased gall bladder may sometimes fill with opaque bile; (2) whether the gall bladder which fails to fill is always so seriously diseased as to warrant its surgical removal," are very important.

We have had five cases that were completely jaundiced and still gave the shadows, the shadows not disappearing after the meals; two cases of a bile-filled gall bladder that contained stones which did not show on the plain film, the bladder emptying after the fatty meal in both instances; one case in which there were no stones on the plain film, no shadow on the film after oral administration, yet after the intravenous administration we found a well-defined shadow of the bladder at the fundic end of which was a well-outlined stone, confirmed at operation, the dye concentration about the periphery enhancing its borders enough to obtain a picture of it. The problem that must be further worked out which will greatly aid in settling the questions Doctor Van Nuys has raised is the physiology of the human gall bladder. I feel that cholecystography is a diagnostic aid for the radiologist that has not been perfected as yet. The physical examination and clinical findings are the

important factors in diagnosing early cholecystitis, in which cholecystography does not always reveal a diseased gall bladder. I feel sure this will be worked out as soon as the physiology and function of the gall bladder are fully determined.

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A. C. SIEFERT, M.D. (Merritt Hospital, Oakland)—The subject which Doctor Van Nuys has selected is one which never fails to draw an audience, though the number of papers published on cholecystography during the last three years in all civilized tongues is legion. Graham and his associates, like Lindbergh, have given us the realization of a dream which we all have dreamed. Reasonable certainty has taken the place of doubt in the roentgen diagnosis of gall-bladder pathology.

In this paper Doctor Van Nuys has covered the subject very completely, and Doctor Reynolds has so well supplemented his statements, that there is nothing left for me to say except to emphasize still further some of their points.

With me the intravenous method of administration of tetraiodophenolphthalein is the method of election. During the past twelve months I have used it to the exclusion of the oral method, and can base my statements on the experience gained from examination of 175 cases. In fully 33 per cent either no filling of the gall bladder was obtained or concentration was low. These 33 per cent would have yielded only equivocal results had the dye been administered orally.

The intravenous method in my hands has developed to a point where I consider it more safe and agreeable to the patient than the oral method. To be sure I still hospitalize my patients for convenience, but I no longer consider this essential.

Emphasis should be placed on the following details of technique:

1. The solution of the dye must be freshly prepared. It must not stand more than fifteen minutes before injection.

2. A dose of $2\frac{1}{2}$ grams is ample. I have found that the doses ordinarily recommended in the literature are too large, and a reaction, be it only a mild one, cannot be avoided.

3. The solution must be dilute. I use $2\frac{1}{2}$ grams of the dye dissolved in 100 cc. of normal saline solution. Greater concentration than this is not wise.

4. The dye must be administered slowly. The gravity method insures this better than injection by syringe. At least ten minutes should be allowed for injection, preferably more.

5. Pituitrin, surgical, 1 cc., administered hypodermically about one-half hour before injection of the dye, I have found to be efficient in preventing a fall in blood pressure to which the majority of the reaction symptoms are due. A contraindication to the use of pituitrin is a history of recent gall-stone colic. The drug does cause the gall bladder to contract and tend to empty itself as I have proven to my satisfaction by injecting it while cholecystography was in progress. Accordingly it will tend to force small calculi, if present, into the mouth of the cystic duct by causing gall-bladder contraction.

In the roentgenological examination proper I have found beside radiography fluoroscopy to be of value. If the gall bladder is visualized one can get considerable information by palpation concerning its mobility, elasticity, and sensitiveness.

As to interpretation of cholecystograms I, too, believe that the future will bring forth increasing accuracy in the early diagnosis of gall-bladder pathology. The basis, however, must be reliable routine of examination. The collection of a series of known normal cases on a large scale such as Doctor Van Nuys proposes to get will be of immense value.

I would like to record the following observations which I have made on my material. I am using the method of Newell for estimating the concentration of the dye in the gall bladder. With an injection of $2\frac{1}{2}$ grams of tetraiodophenolphthalein intravenously the concentration reaches its maximum at fifteen to

eighteen hours. With surprising frequency, I find that I estimate it at about 3 per cent in gall bladders against which no accusation of disease may be brought. In a few cases I have kept the gall bladder filled with dye containing bile for seventy-two hours by giving food absolutely free from fats. I have noticed no further concentration of the dye in such cases. These findings would lead me to say that $2\frac{1}{2}$ grams is an ample dose. No matter what the weight of the patient be the gall bladder will concentrate so much and no more, at least under ordinary conditions.

That the diseased gall bladder may and frequently does retain a considerable power of concentration, I think we all have experienced. That the converse is true, namely, that a gall bladder showing low concentrating ability is always diseased is not quite so certain. I have been reporting such cases as "presumptively pathological" pending further bioptic information.

Complete absence of filling, on the other hand, has in my experience always been more than adequately explained by findings at operation.

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FLETCHER B. TAYLOR, M.D. (1904 Franklin Street, Oakland)—The use of tetraiodophenolphthalein in outlining the gall bladder constitutes a definite help in the differential diagnosis of abdominal lesions. To regard it as more than a help is to invite inaccuracy and faulty clinical judgment. The negative, presumptive or positive findings from the method under consideration must serve as aids in diagnosis and not as pathognomonic or decisive items in determining a diagnosis and the subsequent therapy. If the patient is given the opportunity he will usually trace the disorders of function in himself by answering the questions of a carefully taken history. To put one's trust in mechanodiagnosis is as sterile a procedure as the chiropractor's wholesale mechanotherapy.

Unfortunately the patient has not the advantage of "local sign" in relating abdominal symptoms. He knows to the half inch where an injury has occurred in his somatic being because of the association of sight with sensation, and because of the completeness of his external sensorium. Some individuals seem to possess almost as efficient an internal reception as they have externally, but as a rule we need every bit of evidence obtainable to supplant the more usual lack of this power. The roentgen ray, laboratory findings and diagnostic surgical procedures here take their proper place, and clear visualization of the gall bladder is a welcome addition to the first of these.

It is wrong to suppose that normal gall bladders have a standard behavior or that pathological gall bladders will declare themselves without error just because we have a new way of looking at them. We must receive this with other additions to diagnostic procedure with judicial enthusiasm, interpreting the findings in the light of clinical observation in the individual patient.

A word might be added in regard to the route of administration. Should the dye be given directly into the blood stream, or indirectly by way of the alimentary canal? It is my impression that wherever possible we should avoid putting a foreign body directly into the blood stream. Practically I prefer the oral method for the general reason stated, to be followed by the direct intravenous route where results are indecisive.

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DOCTOR VAN NUYS (closing)—I wish to thank Reynolds, Siefert, and Taylor for their excellent discussions.

We will soon be able to obtain at a reasonable price the isomer of tetraiodophenolphthalein which, according to Sherwood Moore is less toxic, gives a denser shadow and slight persistence of the shadow. It will in addition give a test of liver function which will be used more generally as it becomes known. This substance will, I think, take away the objections to the intravenous method. As Bissell of Minneapolis

suggests, expediency seems to be the sole argument in favor of the oral method.

We have learned much by these methods, but we still have much to learn about cholecystitis. Most of the gall bladders examined by the pathologist will have some pathological change justifying our report of pathological gall bladder. We will be guided in our reports more and more by the effects experienced by the patients several years after the removal of what we term pathological gall bladders.

RHEUMATIC HEART DISEASE—FACTORS IN ITS PROGNOSIS*

By ALFRED HAMLIN WASHBURN, M. D.
San Francisco

DISCUSSION by Harold K. Faber, M. D., San Francisco;
Donald Cass, M. D., Los Angeles; Oscar Reiss, M. D.,
Los Angeles.

I HAVE chosen the subject of prognosis in the rheumatic heart disorders of childhood, not because I consider myself an authority, but rather in order to point out the inadequacy of our common knowledge, and to suggest possible ways in which we may gain a greater insight into this perplexing problem.

INTRODUCTORY

In his lectures to the postgraduate students at the London Hospital, Sir James Mackenzie once remarked, "In your practice one question will arise incessantly and insistently implied or demanded of you by every patient, and that question is, 'What is to be the outcome of my complaint?' This question will meet you in most unexpected ways. Your diagnosis may be brilliant and yield you great satisfaction and the applause of your colleagues, but your patient will only be interested in it so far as it throws light upon his own future, and the problems thus presented are infinite."

No one can practice long without a forceful realization of the truth of this statement. Moreover if one has formed the habit of seeing things through the patient's eyes the reasonableness of the demand is obvious. Therefore most of us must find ourselves in agreement with Sir James Mackenzie when he says that "Prognosis is the coping stone which should complete the edifice of a medical education." But when and how is this last coping stone to be added to our educational edifice?

I venture to state that not one of us, while in medical school, ever received any clear-cut instruction on the prognostic significance of each abnormal symptom or sign in the cardiac disorders of childhood. And yet we are constantly confronted with young patients who present unusual irregularities, rate disturbances or murmurs. How can we predict the future wisely unless we do have some definite instruction in regard to the probable significance of such evidences of cardiac disorder?

When the physician is puzzled by unusual symptoms or signs he usually turns to some reference book—Osler, the loose-leaf systems, or a favorite textbook. There much knowledge may

be gained concerning the probable diagnosis and perhaps many useful, as well as useless, directions as to treatment. But alas, one looks in vain for definite advice which will enable one to give the patient a reliable prognosis. True it is considered the proper thing to insert a paragraph on this subject. But there are presented only vague generalities or else statistics on mortality or morbidity records in so many hundred cases with a given diagnosis. Such information does not help the physician to determine the probable outcome for his own particular patient nor to estimate the significance of individual subjective and objective phenomena.

We must confess, then, that there is great need for more data on the prognostic significance of all the various evidences of disturbed cardiac function. Furthermore there can be only one reliable method of obtaining the necessary information, and that is by the accurate observation of each patient from the onset of symptoms throughout the rest of the patient's life. There are few such observations available in the whole medical literature of the world and yet they would furnish us with invaluable information concerning prognosis. Nor should we forget that the practitioner is the man upon whom this burden must fall. He alone has the opportunity for the collection of these data, so necessary for the rounding out of our medical education.

The solution of this problem demands not only patient persistence and much time—a lifetime in fact—but also a thorough understanding of the closely allied subjects of diagnosis and treatment. Moreover in the very act of gaining a keener insight into prognosis one obtains information which is of great value in the diagnosis and treatment of the patient. This added knowledge may, in turn, enable the physician to alter the prognosis most favorably. I shall, then, consider briefly a few aspects of these subjects which seem to have a direct bearing on the prognosis.

DIAGNOSIS AS IT CONCERNS PROGNOSIS

It is not my purpose to attempt an evaluation of each symptom and sign of cardiac disturbance as to its prognostic significance. But I wish to call to your attention certain essential facts which we must bear in mind if we are to make any valuable contribution to the subject of "prognosis."

To say that we find positive signs of heart disease—or any other disease—usually means that the disease has advanced to the point of actual damage to the organ involved. Naturally the ideal toward which we strive is the prevention of disease or at least its arrest before any permanent damage has occurred. When I say that early diagnosis is of the utmost importance not only in the treatment but in the resulting prognosis I refer to a diagnosis which has been made before the heart is seriously damaged. For instance, we know that rheumatic arthritis, chorea, and such foci of infection as are represented by chronic tonsillitis or sinusitis, are the most frequent forerunners of carditis. Moreover its tendency to occur in several members of the same family suggests another causative factor. Therefore we must

* Read before the Pediatric Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927.

be constantly on our guard not simply to watch for the earliest evidence of heart involvement, either subjectively or objectively, but also to prevent recurrent infections of the type which experience has taught us are most apt to result in ultimate cardiac damage. The point I should like to stress is that adequate prophylaxis combined with early diagnosis makes the prognosis in general more favorable. Only by such careful observation can we determine the significance of each individual symptom or sign.

Although a discussion of functional heart disorders is not within the scope of this paper, it is well to remember the need for familiarity with the many disturbances in rate, rhythm and sounds which are to be found in the heart of the growing child from birth to puberty. It is only by a clear-cut differentiation between such disorders, whether physiological or due to disturbances outside the heart itself, and those due to early organic heart disease, that one can hope to create a more favorable prognosis for the rheumatic heart. Without such knowledge one may either fail to institute early treatment for a patient with real cardiac involvement or else order a needless and perhaps harmful curtailment of activity for a child who needs plenty of outdoor exercise as part of the cure for his functional heart disorder.

Let us suppose, however, that cardiac damage is already present when the patient is first brought to the physician's office. He must then ask himself two questions: "How can I determine the patient's chances for complete or partial recovery and what measures can be adopted which will improve those chances?" Only the first of these questions, involving problems of diagnosis, concerns us for the moment; the other question we shall consider under the discussion of the relationship of treatment to prognosis.

In order to answer this first question one must consider not only the prognostic significance of variations in rate, rhythm, sounds, size and cardiogram findings or pulse tracings, but also the part played by previous infections, whether obviously rheumatic or not, as well as the importance of evidences of rheumatic infection in other parts of the body. Thus the occurrence of repeated rheumatic infections in the past suggests both that the patient has been unable to get rid of the etiologic agent and also that the probable extent of the damage already done is great—two factors which make the prognosis less favorable. Further, the coexistence of other cases in the same family suggests that the disease is infectious and that there may be a constitutional or familial susceptibility to rheumatic infections. Here again the effect of such findings upon the prognosis is distinctly unfavorable. The importance of careful history taking and of thorough-going examinations becomes obvious as one considers how many factors may enter into the formation of a reliable prognosis.

The clearly defined rheumatic infections are acute rheumatic arthritis, an associated rheumatic carditis, and the less clearly proven chorea. In addition to these there are a great many vague

complaints which are often, though probably incorrectly, classed as rheumatic. I refer to fleeting muscle and joint pains without swelling or redness, so-called "growing pains," sore throats, tonsillitis, and sinusitis. It seems probable that the nose, the throat and the accessory sinuses may be the seat of an infection due to the causative agent of rheumatic fever. Whether this is true or not, we know that such foci of infection tend to lower not only the resistance of the local tissues to invading organisms but also the general resistance of the body as a whole. Muscle and joint pains frequently disappear with the removal of such foci. Their relationship to certain infections of the genito-urinary and gastro-intestinal systems has been ably demonstrated at many clinics, notably at St. Louis. Therefore the importance of foci of infection so far as they affect the prognosis of rheumatic heart disease lies not so much in determining their exact relationship—interesting as that may be—but rather in the recognition that the presence of any such focus must make recurrent infection more likely and hence the prognosis more grave. To attempt either proof or disproof of this statement by the quotation of statistics on children with tonsillectomy as compared to those without, is a futile procedure, since the tonsils may or may not represent the seat of the infective focus. Moreover we are apt to forget that the removal of the tonsils after the rheumatic infection has gained an entrance to some other part of the body may be as futile as locking the barn door after the horse is stolen. Removal of foci of infection should be accomplished before the disease has gained a foothold elsewhere in the body.

After estimating the significance of these etiological factors, making a mental note of possible measures of combating them, we must turn our attention to the physical signs. Here the essential point to be determined in any attempt at prognosticating the future, is the extent to which the heart is already damaged. Is there pericardial involvement at present as shown by friction rub or effusion? Has some previous pericarditis left adhesions which seriously handicap the heart in its action? How extensively are the valve cusps damaged? Has a mitral stenosis been produced as shown by presystolic or diastolic murmurs or is there a simple regurgitation? Is more than one valve affected? It is obvious in what way our answers to such questions must alter the prognosis. Passing on to a consideration of the myocardium one must attempt some conclusion as to the evidences for or against damage to the heart muscle. Few rheumatic hearts escape some myocardial involvement, and the degree of harm done in such involvement is not easy to estimate. Clinically, of course, the reaction of the heart itself, whether compensated or decompensated, together with the rate and rhythm may give some information as to the condition of the muscle. The electrocardiograph record may give us valuable aid in recognizing such disorders as damage to the conducting mechanism or to some localized part of the heart muscle. So too the x-ray may be of

use in correcting the errors in percussion of the heart borders or in bringing to light unsuspected abnormalities in the size or shape of the heart.

The importance of evidences of rheumatic infection elsewhere in the body must be carefully weighed. Thus the severity and persistence of joint involvement, chorea, or the characteristic subcutaneous rheumatic nodules, must always enter into the consideration of a carefully formed prognosis. The fibroid nodules, so characteristic of the disease, may serve as a good illustration of the need for careful observation of signs before giving a final estimate of their prognostic value. The English workers were the first to point out their relationship to rheumatic fever. At this time it was stated by certain American workers that these nodules must be more common in England than in America. Soon, however, various workers in this country began to report their appearance in the most severe cases of rheumatic fever. The conclusion was at once drawn that they must be taken as being of serious prognostic significance. Following recent careful and painstaking observations, their occurrence seems to be more frequent than was formerly supposed. They are, then, to be looked on as simply one of the possible manifestations of the disease. And just as repeated evidences of rheumatic infection elsewhere in the body are of serious import so recurrent crops of rheumatic nodules indicate a poor prognosis.

We have already stressed the importance of a thorough history and examination. If we are to give a sound prognosis we must constantly bear in mind the factors which seem to exert the greatest influence on the final outcome. We may say, in the first place, that the prognosis is made graver by the occurrence of rheumatic infections in other members of the family, giving a greater danger of reinfection as well as indicating the possibility of a familial tendency or susceptibility to the disease. Secondly, the presence of any unremoved foci of infection in the patient is to be regarded as a distinct menace to a good prognosis. Thirdly, each recurring attack of rheumatic fever, especially of rheumatic carditis, lessens the patient's chances to a marked degree. And in the fourth place, any signs pointing to cardiac damage increase the gravity of the prognosis in proportion to the degree and type of the damage. Thus evidences of a mitral stenosis are of more serious import than a simple regurgitation. Similarly heart block or other evidences of myocardial damage suggest a permanent impairment of the efficiency of the heart muscle. In short those signs which suggest cardiac decompensation either as an immediate or as a late result must always be associated with a poor prognosis. Repeated decompensation in itself allows one to give only the gloomiest of outlooks.

At times one sees patients so acutely ill with rheumatic carditis that their immediate future seems dubious indeed. But if it is a first attack, and if their past history and general condition give nothing to suggest a poor prognosis, it is often astonishing to see how completely they recover. The late Doctor Holt in the last lectures

which he delivered in Peking, discussing the remarkable power of the organism of the growing child to repair severely damaged body tissues, cited several instances of complete recovery from rheumatic endocarditis in which there had seemed to be considerable cardiac damage at the time of the infection. This brings up the question of estimating the prognosis during the period of convalescence. Certainly those patients who show a steady and relatively rapid recovery may usually be given a much more favorable outlook for life, since they show such early evidence not only of less crippling damage to the heart but of good recuperative powers. This also suggests again that by one's therapeutic skill one may favorably affect the prognosis.

PROGNOSIS AS INFLUENCED BY TREATMENT

It may also be said that a thorough understanding of the prognostic significance of every point which is brought to light in the history and physical examination should, in the end, give us the only sound basis for rational therapy. In spite of our acknowledged lack of any adequate grasp of the whole subject I shall attempt to indicate briefly the chief therapeutic measures which seem to have a direct bearing on the prognosis.

First of all I must again stress the importance of the various preventive measures. Separation from other cases of rheumatic infection seems to be clearly indicated, and yet this is rarely done. The removal of every possible focus of infection—not simply the tonsils—is a most valuable and incidentally a much neglected weapon in combating the occurrence of rheumatic infection. And finally the general ordering of the patient's daily routine of life in order to avoid overfatigue, exposure to infections, strains, and chilling exposures, plays its part in the prophylaxis of the disease.

Let us now consider the child acutely ill with rheumatic carditis. We must all agree that absolute bed rest is the essential part of his treatment; but it is important to remember that the patient's future may depend upon the thoroughness with which this simple measure is carried out. Every motion from the act of eating to the mere shifting of the patient's position in bed should be reduced to the minimum expenditure of energy. The patient *must* have rest; and codein or morphin may be a most necessary adjunct to good nursing. The beneficial effects of such therapy may be lost unless it is continued until after the pulse and temperature have returned to their normal level.

Then comes a very critical period in the successful recovery from a rheumatic carditis. How long shall we advise rest in bed and upon what indications shall we depend in estimating the probable prognosis and in determining the speed with which the patient may be allowed to resume his normal activity?

Although I do not feel that this question is by any means solved, yet I do feel that a systematic application of physiotherapy during the stage of convalescence is of the greatest possible value. In 1922 the late Doctor Bronson presented before

this body a most admirable discussion of this subject. There is no question in my mind but that the prognosis may be greatly improved by some regimen which starts with the simplest kind of passive motions in bed and carries the patient along by a careful grading of the exercises until it is safe to allow him to assume the strain of his daily routine of life at home. Such exercises may usually be started about two weeks after the temperature and pulse have returned to normal. The tolerance of the patient to these motions is carefully determined by pulse records before and after each set of exercises, and by blood-pressure readings at least once a week. By this means also much valuable information may be obtained in regard to the prognosis. A rapid increase in the patient's tolerance to a given set of exercises gives evidence of less serious cardiac damage and hence of a more favorable prognosis. There can be little doubt of the danger involved in a period of long bed rest without any such exercises, followed by a sudden resumption of the normal daily activities. Many times it may be a matter of months before it is safe to allow a patient out of bed; but carefully controlled exercises in bed which never go beyond the individual's tolerance will not only shorten the necessary period in bed but will also greatly lessen the strain on the heart when the patient is first allowed up.

These graded exercises are important from quite another point of view, namely, that of keeping up the patient's morale. I am sure we have all seen patients whose failure to make a good fight for life seemed actually to play an essential part in the fatal outcome. The daily exercises give these youngsters some tangible evidence of progress—something to which they can look forward each day with renewed interest in life. Such obvious proof of progress is strikingly absent in the usual regimen of prolonged bed rest. Equally careful attention should be paid to the patient's morale during the whole follow-up period. Physiotherapy classes for some, and boys' and girls' clubs for others, will help materially in combating discouragement. In no other way can we obtain that adequate degree of cooperation, so essential to the preservation of a good prognosis for our cardiac patients.

I have said nothing so far about the question of drugs except to urge the use of opiates to obtain complete rest during an acute carditis. During recent years we have learned to use digitalis less frequently but in larger doses than formerly. Except in the presence of auricular fibrillation—a rare finding in childhood—the results from its use are apt to be disappointing. To be sure congestive heart failure is frequently much benefited by digitalization. A persistent tachycardia may also yield well to digitalis in proper dosage. But in the presence of an acute infection the results are usually so discouraging as to form almost a contraindication to its use. Therefore it may be fairly said that in childhood digitalis only occasionally alters the prognosis to any marked degree, and beneficial results can be obtained only by giving an adequate amount of the drug. Chil-

dren require 30 to 100 per cent larger doses than the average adult as calculated by the Hatcher-Eggleston formula. Thus for every ten pounds of body weight the average child will require .13 to .20 grams of the dried leaf or in terms of the tincture about 1.5 to 2.0 cc. per ten pounds of body weight, before actual digitalization can be expected. The total dose may be given over a period of time varying from twenty-four hours to a week, according to the type and severity of the given case. In other words, if digitalis is to affect the prognosis in a favorable way it must be given only to selected cases and in doses large enough to produce actual digitalis effect as shown by a slowing and strengthening of the heart beats. The early toxic symptoms of nausea and vomiting are to be avoided if possible and their development must serve as a warning of overdosage.

Even in these days, when modern scientific medicine denies that there is a specificity in the action of the salicylates, one can hardly pass them by without mention. For the joint pain associated with rheumatic fever yields so satisfactorily to large doses of this drug that their indirect effect on the heart through their quieting of the patient may have a marked influence on the ultimate prognosis. Hence lack of proof as to their specificity cannot justify failure to use them in relieving the pain of rheumatic arthritis. Whether the chance of recurrent rheumatic fever can be lessened by the use of salicylates intermittently throughout the year or during seasons when the patient is subject to attacks, is still an open question which lacks adequate proof on either side. The need for carefully controlled clinical experimentation along such lines is too obvious to need further stressing.

SUMMARY

There are, then, certain essential points at which treatment and prognosis are very closely associated. These may be summarized as follows: (1) The prevention of rheumatic heart disease by separation from possible contacts, by thorough removal of all foci of infection, and by careful treatment of any rheumatic infections as they occur. (2) Early diagnosis of cardiac involvement. (3) Close observation and treatment during an acute carditis. (4) Adequate after care and follow-up with frequent observations on the changing tolerance of each individual patient to graded exercises. I have listed these in such a way as to suggest how the prognosis may be improved by treatment. It must not be overlooked, however, that only by a thorough application of such therapeutic measures as we possess can we gain adequate data upon which to base our prognosis.

I should like to close with a plea for the widespread establishment of convalescent homes where cardiac children may receive proper care and where invaluable observations can be made on large groups of such children during the period when they need rest and quiet. Furthermore the tedious and exacting task of giving graded exercises necessitates rather more knowledge and skill than the average parent possesses. Our hospitals

are usually much too busy with acute cases to carry out any such regimen, and the price demanded by trained physiotherapists places their help quite beyond the reach of either the average family or the average hospital pediatric service. The pressing demand for more efficient care of our cardiac children, and the equally important need for greater knowledge concerning the disease, its cause, and its prognosis cannot be satisfactorily relieved until we have such convalescent homes for that particular portion of our youth who are suffering from heart disease. Nor can I think of any single measure which would accomplish more toward giving these children a brighter prognosis.

University of California Hospital.

DISCUSSION

HAROLD K. FABER, M.D. (Stanford University Hospital, San Francisco)—Doctor Washburn has given a thoughtful and thorough presentation of a subject of great practical importance. The prognosis of rheumatic infections in children is extraordinarily difficult to determine, but it is a thing which parents expect and demand of the physician. Doctor Washburn has shown the points on which the practitioner may base his prophecies. It is well I think in rheumatic cases to keep in the background of one's mind the marked differences between childhood and adult life, particularly the considerable powers possessed by the child to overcome or compensate for degrees of damage which would certainly cripple the adult for life. While it is not well at the onset of rheumatic infection to stress this possibility too heavily it does permit a certain guarded optimism with one's juvenile patients not quite so justifiable with those more advanced in years.

Doctor Washburn's comments on familial infection are of great interest. The whole question of constitutional predisposition is, however, so imperfectly established that it is perhaps better at present not to rely too heavily on its assumptions. *A priori*, contact infection rather than heredity is the more probable explanation of familial incidence, and the better guide to management. It seems to me reasonable to treat rheumatic infection as communicable and to institute suitable precautions against its spread. Proper institutional facilities for patients with actual or potential cardiac disease are essential. The convalescent home in the country, with provisions for full bed rest and trained nursing (as at the Stanford Convalescent Home), certainly offers the best solution. The prognosis, as Doctor Washburn says, depends to a great extent upon adequate rest, and this of course must often be continued for long periods of time. It is not uncommon to see some fever continue for months. The advantages of the country are to some degree intangible, but nevertheless real. The pure air, unobstructed sunshine, freedom from noise and dust plus, perhaps, some unknown factors, bring about a cheerfulness and contentment that, as Doctor Washburn rightly emphasizes, are of the greatest practical value to the patient and make a favorable outcome of his disease more probable.

Doctor Washburn's conservatism in discussing foci of infection is praiseworthy. The character of the relationship between foci and general infection or distant local infection cannot even today and in spite of the enthusiasm of the Rosenow school be regarded as clearly defined. The whole hypothesis will probably undergo radical revision before it is on a firm basis. In the case of rheumatic infection in which the focal infection theory has been held longer than in almost any other disease, conclusive proof is still lacking. It seems most reasonable at the present time to assume that the specific virus may enter the body at any one of several points and may find various lodging places during periods of activity and the intervals between. The best chance of prevention does not lie in the im-

possible attempt to remove every potential portal of entry before infection nor in the removal of every suspected portal after infection, but to prevent infection first by avoidance of contact, and second, by so improving and maintaining personal and environmental hygiene that the individual's chances of becoming infected are minimized. That the latter is the most effective method is shown by the relative infrequency of rheumatic infection in the economically better classes, in which good hygienic conditions are as a rule possible and actual.

While evidently diseased tonsils should as a rule be removed, purulent sinusitis suitably treated, and so on, it is necessary to recognize that surgical procedures in infected areas are not without danger. Most practitioners of experience have seen such post-operative complications of tonsillectomy as endocarditis, pericarditis, or even general sepsis—complications which the tonsillectomy was designed to avoid. Fortunately these are rare and do not constitute contraindications to the operation where it is manifestly required, but they point to the need of caution and foresight.

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DONALD CASS, M.D. (5300 Hollywood Boulevard, Los Angeles)—I have read Doctor Washburn's article with a great deal of pleasure. He has been unusually clear in covering his subject. My own thought is to add a word about prognosis after repeated attacks, and in later life after the acute damage has occurred. The importance of recurrent or repeated attacks is paramount and is the thing we have all worried over and tried to prevent by removing foci, by removing possible infected contacts, etc. I wish to mention the importance of *any* infection in a person who has myocardial damage. The tendency to dilation which occurs in pneumonia can be cited. This same type of intoxication can be said to be present in all general infectious diseases to a greater extent in some than in others. My own experience has been that attacks of gastro-intestinal infections, characterized by slight rise in temperature and diarrhea will in many instances affect the myocardium as strongly as an attack of streptococcus sore throat.

Both Doctor Washburn and Doctor Faber emphasized this in speaking of general hygiene, including removal of septic foci from the body to prevent any loss of resistance that their presence might cause. Exercise and convalescent home treatment is something that many of us are unable to obtain for our patients, but it is the ideal convalescence for this disease. One other means of treatment that I mention, only to condemn, is the use of various dyes intravenously. Many have used mercurochrome and gentian violet in the vein in treating patients during the active courses of rheumatic heart disease, but I have yet to see a patient benefited and I have seen some who apparently did not do so well after having this treatment.

Doctor Faber stated that a guarded optimism is justified. I am frankly optimistic about immediate results; and feel that when past the initial attack, prognosis can be optimistic in direct ratio to the intelligence of the cooperation of the patient and his associates in the promotion of hygiene to prevent recurrent rheumatic fever and other infections after the manner described in Doctor Washburn's paper.

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OSCAR REISS, M.D. (2007 Wilshire Boulevard, Los Angeles)—Doctor Washburn's paper is one quite worthy of thoughtful consideration and offers to the practitioner an excellent basis to guide him in the prognosis of rheumatic heart disease.

I can only emphasize certain of the points that he has already stressed.

1. *No prognosis should ever be offered until all available diagnostic measures have been used* not only to assure a proper diagnosis, but also to establish as nearly as possible the extent of cardiac damage. Altogether too frequently have we seen children with trivial heart conditions converted into invalids because

parents have been frightened by improper prognosis. Hasty prognoses often do as much harm as improper treatment.

2. *Importance of Outlining Comprehensive Treatment and Management of This Condition When First Seen*—All of us who are attending county hospitals frequently see our unfortunate little patients taken home so early that they return with a recurrence. This we see repeated until an irremediable amount of damage is done. The best interest of his patients demands that the physician not only be able to properly diagnose ailments and offer therapeutic remedies, but be able also to convince his patients of the dire importance of carrying out implicitly the measures for relief that he suggests.

3. *Prophylaxis*—One cannot help but be deeply impressed by the infrequent incidence of rheumatic infection in private practice among the better-to-do families. This is obvious proof of the importance of hygiene in the prevention of rheumatism.

MECHANICAL DIAGNOSES IN PULMONARY TUBERCULOSIS *

By JOHN R. WILLIAMS, M. D.
San Jose

DISCUSSION by George Dock, M. D., Pasadena; W. R. P. Clark, M. D., San Francisco; T. H. Toynbee Wight, M. D., Palo Alto.

“DO not stunt the natural faculties given you by placing too much dependence upon mechanical agencies,” is a statement quoted to me as coming from a professor in one of our leading medical colleges. I am a firm believer in that doctrine.

THE SPHYGMOMANOMETER

My father, who was a physician also, discussing the value of the sphygmomanometer, said “Train your fingers to determine the blood pressure and you may find it to help you out of many tight places when mechanical devices are either not available, or fail you when available.” He claimed he could, by use of his fingers, make an estimate of blood pressure sufficient for at least most clinical purposes. After checking him with the sphygmomanometer he made a convert of me. I fear too many of us are failing to train the tactile sense as my father did through years of practical experience.

I would not, however, have you think I am opposed to the use of the sphygmomanometer. In diseases of the lungs I believe blood pressure important enough not to trust to my imperfectly trained sense of touch, so I use this mechanical means and record the findings for future reference and comparisons.

I do not make a diagnosis of pulmonary tuberculosis by mechanical means only. I confess I use them, but depend more upon the use of those natural faculties given me by nature. And when machine and natural faculties fail to agree I place more dependence upon the latter. One of the truest statements ever made by John D. Murphy is, “Diagnoses are made with cortical cells rather than with alleged instruments of precision.” This opinion I believe I confirmed during five years’ work in Government service, where repeated ex-

periences taught me mechanical agencies are too frequently undependable.

THE X-RAY

Let us consider the x-ray. During the greater part of my Government work I had the assistance of a very competent roentgenologist. Yet, in spite of his acknowledged competency, through the use of my natural faculties developed by years of practical experience, the x-ray interpretations were too frequently found and proven to be wrong.

By x-ray I have seen lungs diagnosed as normal that were obviously diseased; and the reverse, diagnosed as diseased which were not. I have seen malignancy diagnosed as tuberculosis; tuberculosis diagnosed as pneumoconiosis; syphilis diagnosed as tuberculosis or pneumoconiosis. I have seen abscess diagnosed as tuberculosis and malignancy as abscess. Recently I saw a case of diaphragmatic hernia diagnosed as tuberculosis with cavitation, and more recently I saw a case of miliary tuberculosis diagnosed as postinfluenzal pneumonitis. A correct diagnosis of this case I made from the history alone which was confirmed by post-mortem findings.

Again I plead against possible misunderstanding, for I am as strong a believer in the use of the x-ray in the diagnosis of lung diseases as any of my hearers, and confess that on more than one occasion it has been of great help in reaching correct conclusions. I am one clinician who seems to recognize there are cases of lung disease which, at the time, give no definite physical signs. This is particularly true of miliary tuberculosis and pneumoconiosis, more especially when associated with an incomplete or otherwise defective history.

But let us not deceive ourselves about the x-ray. We must all admit the plates show nothing but certain shadows of more or less density. They may be flocculent, cottony, linear markings or what not, but the fact remains they are only shadows. I will say without fear of contradiction by any honest authority, similar shadows, similarly placed as to lobe involved, are caused by different diseases. But from the study of such plates there is no roentgenologist that ever has been or ever will be able to state without the possibility of error just what disease is responsible. One needs but to compare x-ray reports with post-mortem findings to be convinced of that fact.

Now let us take the microscope as another example of mechanical diagnoses. Like the x-ray it is too frequently a source of confusion and often of positive error, even though it is so often helpful. We should be more guarded in accepting reports from clinical laboratories which do not tally with the majority of the other means of arriving at a diagnosis.

THE MICROSCOPE

Too many are prone to take the short cut to diagnosis by means of the microscope. By all means use it, but we should not let this mechanical aid stunt our diagnostic ability. Our eyes, hands, ears and cortical cells are fully as dependable.

Let us consider the microscopic examination

* Read before the Medical Luncheon Club, San Jose, June 27, 1927.

of sputum: An acid-fast bacillus reported as present is by too many at once accepted as proof positive that tuberculosis is present. I have been guilty of that mistake in the past, only to become embarrassed later for so doing. The reverse, however, is a more common error. Perhaps we are too inclined to placate the mind of our patient with the statement he is not suffering from that dread disease when the laboratory report is negative.

I believe there are actually fewer cases of tuberculosis than the microscope seems to demonstrate. In other words, with a report of positive sputum in the absence of history, clinical symptoms and physical findings to support a diagnosis of tuberculosis, further observation of such cases will demonstrate the error to be in the laboratory findings, and what was thought to have been the tubercle bacillus, was not.

We should stop to consider that acid-fast saprophytic micro-organisms are found in the mouth, the tonsils, the nose, the throat, and other portions of the respiratory tract that are easily confused with the tubercle bacillus under the microscope, and that tubercle bacilli themselves, both living and dead, have been repeatedly demonstrated in those same localities, with a total absence of clinical tuberculosis in the individual case.

Let us be mindful of the fact there are some people who wish to be labeled as tuberculous, and who submit to us specimens for examination that they have received from some other patient. Here in California, where a beneficent legislature has made tuberculosis one of the conditions compensable under the Workman's Compensation Act, there will probably be a great many more such cases. In Government work with the ex-service men, hundreds of such cases have been uncovered, until it became necessary to pass a regulation that no sputum report would be acceptable unless the sputum was certified, that is, was endorsed as genuine by some officer in authority who had seen it expectorated.

The Ziehl-Nielson method of staining sputum is the one generally used by most clinical laboratories. As you know, acid-fast bacilli take the red stain and retain it in the presence of decolorizing agents. For decolorizing, it is the rule in most laboratories not to use an acid stronger than 25 per cent, with or without alcohol. It is an established fact certain strains of the streptothrix will hold on to the red stain in the presence of 25 per cent acid, and as a result are often mistaken for tubercle bacilli. But if 30 to 35 per cent acid, with or without alcohol, was used the streptothrix will give up the red stain and the tubercle bacillus will hold on to it. This error has frequently occurred, resulting in incorrect reports sent out from clinical laboratories.

I recall a certain clinician who stated to me he had found six cases of lower lobe tuberculosis with no disease in the upper lobes, all in a single year in a series of less than 150 patients, and in each case demonstrated the presence of the tubercle bacillus in the sputum. My opinion is he had an inefficient laboratory technician, and was deal-

ing, at least in part, with streptothrycosis and not tuberculosis.

I wonder how often pulmonary malignancy is erroneously diagnosed by the microscope as tuberculosis. It has been repeatedly demonstrated that malignant tumors harbor an acid-fast saprophyte which reacts toward stains as the tubercle bacillus and resembles it in appearance. When such a malignant tumor ulcerates and discharges through a bronchus we find a sputum containing an acid-fast bacillus which has been mistaken for the tubercle bacillus and so reported. I have wondered if some of the cases reported by Atkinson¹ as tuberculosis complicated by malignancy were not such cases.

The case reported by Heuper² very beautifully illustrates that point. He reports a case of proven malignancy in which two different specimens of sputum showed acid-fast bacilli that were reported as being tubercle bacilli. The diagnosis of tuberculosis was made, but on post mortem no tuberculosis was demonstrable.

Again, do not misunderstand me. Tuberculosis and malignancy can occur together. It is well recognized that the walls of old tuberculous cavities are a favorite seat for the development of pulmonary malignancy, just as is the case with scar tissue elsewhere in the body.

Hawes of Boston was probably the first insistently to call our attention to the fact that a positive sputum was not necessary in order to make a diagnosis of pulmonary tuberculosis. In fact he became so insistent too many began to discard the microscope almost entirely. Now, however, Hawes regrets this past insistence. After greater experience he admits that if we will look long enough few cases of clinical tuberculosis will fail to give a positive sputum. As a rule we usually find them by the time we have examined ten specimens, but I have had one case where the tubercle bacillus was not found until the thirty-second specimen had been examined.

Unfortunately, once the presence of the tubercle bacillus has been established, too many clinicians stop there, concluding they have only a case of tuberculosis to deal with. It should not be forgotten other lung diseases follow, or precede, tuberculosis and we may actually have a complication of diseases. As complicating diseases, pneumonia, bronchiectasis, pneumoconiosis and, more rarely, syphilis occur. As Dieulafoy states, "they hatch the latent bacilli," meaning by that, they create a condition by which the tubercle bacillus is liberated from the tissues. In some of these cases there is no clinical tuberculosis present, though conditions favorable for its later development have been brought about.

Rosenberger's startling announcement from Philadelphia, about 1909, that he was demonstrating the tubercle bacillus in the blood of practically all sufferers from pulmonary tuberculosis, and that in many instances he was finding it in the blood of many in whom clinical tuberculosis had not as yet developed, is still fresh in our minds. When his work was checked by others it was found he was using water in which an acid-fast saprophyte was found in large numbers, and it

was that germ he was finding, not the tubercle bacillus.

In 1923, Wight at Hospital No. 24, Palo Alto, California, suddenly began finding positive sputums in cases which before had not given tubercle bacilli and which presented no clinical symptoms nor physical findings to account for the microscopic findings. On investigation he discovered he had been using a fuchsin stain made from tap water in the laboratory, and that this tap water was laden with an acid-fast bacillus resembling the tubercle bacillus. Rechecking his work, using a stain not so contaminated, his positive sputums promptly disappeared.

We should keep in mind an acid-fast bacillus is found in both milk and butter, two foods much used by sufferers from lung disease. It is easy to see how they can get into sputum and be mistaken for tubercle bacilli. Acid-fast saprophytes have been repeatedly demonstrated in the crypts of the tonsils, and from there they can easily get into the sputum and cause incorrect reports.

In any locality where many Oriental people are living we should always be on the lookout for leprosy. The bacillus of leprosy, as you know, is almost indistinguishable from the tubercle bacillus under the microscope. When I was in Government service and stationed at Hospital No. 24, Palo Alto, California, a case of leprosy came into one of my wards. Smears taken from an ulceration in the nose showed large numbers of acid-fast bacilli. It is not difficult to see how easily these bacilli could have gotten into sputum, had there been any, from the nasal secretions. I am confident had I sent in the smears without letting the laboratory know the diagnosis which had been made, and had they been examined by one less discerning than Doctor Wight, a report of "positive for tubercle bacilli" would probably have been returned.

Attention should doubtless be called to the recent work of Holman,³ Toronto University, by which he has been able to convert non-acid-fast bacilli into acid-fast almost at will, by treating them with certain oily substances before staining. He has also been able to reconvert them to non-acid-fast by washing them with xylol. He cites a case in which he found a seeming acid-fast bacillus in pus from a discharging empyema, which was thought possibly to be tuberculous. Due to the fact that other bacilli similar in shape and size were found in the same specimen which did not take the red stain, but took only the blue stain, he investigated and found that petrolatum had been used in dressing the wound. Treating non-acid-fast bacilli with petrolatum and then staining, he found them easily converted into acid-fast.

I do not find in his report, however, that he has experimented with mineral oil, which is so much used these days for therapeutic purposes. It is barely possible mineral oil may also convert non-acid-fast bacilli into acid-fast, and sputum from persons so treated might be interpreted as coming from tuberculous lungs.

In feces rich in fats, acid-fast bacilli have been frequently demonstrated and mistaken for tubercle bacilli. Acid-fast bacilli are often found in the ear and similarly misinterpreted, possibly being non-acid-fast bacilli converted into acid-fast by the ear wax. Also there are about forty known acid-fast bacilli and it is easy to see how sputum may become contaminated by one or more of them and be misinterpreted as tubercle bacilli.

The clinician is wise who does not accept laboratory reports resulting from mechanical investigation as final until he has checked them against the history, clinical symptoms, and physical findings. In this way he will lessen the actual number of seemingly demonstrated cases of tuberculosis by laboratory methods which give neither history, clinical symptoms nor physical findings of the disease.

Admitting that mechanical means as aids in making a diagnosis are useful to the clinician, and that they should always supplement clinical examinations when practicable, I yet believe they are prone to more errors than the workers with them are willing to admit. I cannot be too insistent that, where mechanical means fail to tally with history, clinical symptoms and physical findings, we are safer to rely on the latter than the former.

I am convinced many physicians are relying on mechanical means as employed in some laboratories, rather than upon those natural faculties given by nature; and by such reliance are failing to develop those natural faculties to that efficiency demanded for excellent clinical work. Never has the art of physical examination and logical deduction suffered so much as since the introduction of the microscope, the x-ray and other alleged instruments of precision. I deny the claim of the laboratory that its work is final, but admit it is helpful, though too often confusing.

246 South First Street.

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DISCUSSION

GEORGE DOCK, M. D. (407 Professional Building, Pasadena)—Doctor Williams' article might be condensed into his own words, viz., "The clinician is wise who does not accept laboratory reports resulting from mechanical investigation as final till he has checked them against the history, clinical symptoms and physical findings." He touches a weak spot in present-day methods in mentioning the large number of cases in which laboratory reports were faulty as the result of inferior training, or poor judgment, or both. He does well to insist on the thorough training of the physician, in all non-laboratory methods. If such a one works with the laboratory man, each one helping the other to advance his knowledge and experience, the better for the patient.

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W. R. P. CLARK, M. D. (516 Sutter Street, San Francisco)—I think the paper of Doctor Williams is well timed, for many general practitioners of today are

inclined to look for a short cut to diagnosis of diseases of the chest and depend a little too much on mechanical measures. Too much emphasis cannot be placed on the necessity for a painstaking history, the observation of clinical symptoms, and a thorough physical examination. We should, however, remember that medicine is not an exact science and welcome every mechanical method and laboratory examination available and correlate them with the other findings before reaching a conclusion. Regarding the x-ray, as I have stated in a previous article, I think the roentgenologist should be considered as a consultant of the internist, and the chest condition be discussed with him just as we discuss cases with specialists in other branches of medicine and surgery rather than rely entirely on a stenographic report on the film.

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T. H. TOYNBEE WIGHT, M.D. (U. S. Veterans' Hospital, Palo Alto)—Doctor Williams' article is timely and full of good advice to the tired busy practitioner of medicine who is so often willing to turn over the responsibility of diagnosis to some laboratory. The colleges are turning out yearly thousands of sight-seers who have looked over the field of bacteriology and serology and are searching for positions of trust. The practitioner must be on his guard against such diagnosticians while he must also encourage them in every way possible to gain that judgment without which opinion is of no value.

Doctor Williams labors under a slight misapprehension when he states that my stains were made up with tap water which contained acid-fast bacilli. He refers to a time when I warned the surgeons that acid-fast bacilli were numerous in our drinking water and that one must take this possibility into consideration when notice was given of the finding of two or three acid-fast bacilli in a specimen uncorroborated by clinical findings.

I have demonstrated the possibility of converting diphtheroids into acid-fast bacilli by means of lubricants, and wonder if we may not have to be on the lookout for malingers when this possibility becomes more generally known. Since many of the coccoidal forms also take the stain under these conditions it will be but rarely that a competent technician need be confused by these appearances.

I think we should be grateful to Doctor Williams for the able manner in which he has presented his case.

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DOCTOR WILLIAMS (closing)—In reply to Doctor Dock, one cannot do otherwise than fully concur. I wonder, however, if it might not also be stated that the physician should strive to obtain as thorough training in laboratory work as in the non-laboratory methods, believing it would better enable him to interpret the laboratory findings and properly fit them in with the clinical findings.

In reply to Doctor Clark, we are in hearty accord, and I believe most roentgenologists seek just such a relation with the clinician as pictured.

I regret deeply the seeming misstatement I have made regarding the stains used in the laboratory at Hospital No. 24. I made the statement from memory of five years' duration, not from any written record. It shows again the importance of recording findings and not trusting to memory. Again, perhaps the misunderstanding will serve to lay emphasis on the importance of careful preparation of laboratory reagents even though in this particular instance Doctor Wight's laboratory had not been guilty. Doctor Wight clearly points out another source of possible contamination of sputum through drinking such water as referred to.

I am deeply grateful to the three doctors, whose opinions I value most highly, for discussing this paper.

RADIATION THERAPY IN HYPERTHYROIDISM*

By ALBERT SOILAND, M. D.
WILLIAM E. COSTOLOW, M. D.
AND
ORVILLE N. MELAND, M. D.
Los Angeles

DISCUSSION by Lyell Cary Kinney, M. D., San Diego; J. Marion Read, M. D., San Francisco; William Henry Gilbert, M. D., Los Angeles.

THYROID disease and its surgical treatment has been ably discussed during the past twenty-five years. Previously the treatment of this condition had always been considered to be medical. Surgical technique has been greatly improved in recent years, and the surgical treatment of thyroid conditions is fairly safe and simple in competent hands. This is especially true in patients having non-toxic thyroid disease. In toxic goiter or hyperthyroidism the mortality rate is still appreciable and end results far from ideal. After reading many papers written upon the surgical treatment of hyperthyroidism, one might obtain the idea that this procedure was practically without danger and about 100 per cent curative. However, a careful review of the literature will reveal that the facts are otherwise. There are many patients who show recurrence of symptoms after operation, and other patients have apparently not received much benefit. Probably the actual surgical cures in selected cases of hyperthyroidism do not exceed 65 to 75 per cent of the patients treated.

The mortality from operations for hyperthyroidism in clinics like those of Crile and the Mayo's, after careful selection and grouping of cases, may be only a fraction of a per cent, but as shown by Crotti and others the mortality by the general surgeons throughout the country is probably nearer 12 to 15 per cent.

In the past ten years the consistent reports of cases made by radiologists throughout the world show that the results of radiation treatment of hyperthyroidism are certainly equal to those obtained by surgery. The logic of the radiation treatment is based upon the fact that in hyperthyroidism there is hypertrophy and hyperplasia of the thyroid cells, with an increased secretory function. Surgery cures by removing the greater part of the hyperactive gland. Radiation cures by destroying and shrinking a large number of the hyperactive cells.

SELECTION OF PATIENTS FOR RADIATION TREATMENT

We believe the most important factor in the success of radiation treatment is the proper selection of patients. All non-toxic goiters (cysts and adenomata) and all toxic adenomata should be removed surgically. If there is some contraindication to surgical removal of toxic adenomata, then radiation may be used—often with very good results. However, the operative risk is so small, and the surgical results so good in toxic adeno-

* Read before the Radiology Section, California Medical Association, at the Fifty-Sixth Annual Session, April 25-28, 1927.

mata, that this type should be referred to the surgeon.

In most substernal goiters surgery should be resorted to if it is possible to remove the mass and the patient's condition permits. Some of the toxic substernal masses are hyperplastic and may disappear after radiation.

We believe radiation should be given first consideration in the selection of treatment of the so-called exophthalmic goiters or cases of hyperthyroidism. The only cases of this group in which surgery is especially indicated are the ones where the gland is large enough to cause pressure symptoms. If radiation is confined only to cases of hyperthyroidism the results will be as good and probably better than surgery, as the treatment is gradual and can be better controlled, and there will not be a mortality rate.

In postoperative cases of hyperthyroidism, radiation is certainly indicated. Numbers of these patients are continually being seen by all radiologists, which is evidence of the fact that it is not always possible to remove just the proper amount of thyroid tissue to cure the toxic symptoms. The fact that with radiation treatment the thymus is also treated, may be one reason why these postoperative cases, which are still toxic, respond so well to radiation.

CONTRAINDICATIONS COMMONLY ADVANCED

In properly selected cases of hyperthyroidism there can be no logical contraindications to radiation treatment. One contraindication that is sometimes advanced is that the radiation treatment is slow and serious visceral changes may take place before beneficial effects from radiation are obtained. In the milder cases this is of no importance because serious visceral changes are slow in appearing and usually there is benefit from radiation before this could occur. In severe cases of hyperthyroidism the patients must be prepared medically anyway before surgery is done, and usually the operative procedure is in several stages, so the elapsed time is as great as it would be from the radiation treatment.

A few years ago some of the surgical textbooks showed horrible examples of x-ray burns on the neck and proclaimed this a serious contraindication to radiation therapy in thyroid disease. This, of course, is an unreasonable argument, because with present methods and technique even a skin reaction need not be produced. Only 25 to 30 per cent of an erythema dose is given at two or three-week intervals, and it is impossible to injure the skin except from carelessness or lack of skill on the part of the radiologist. Others have said that if the thyroid is once radiated an operation later is much more difficult. Many reports from prominent surgeons and pathologists have discredited this. The general agreement is that it is impossible for the surgeon or pathologist to pick out the cases which have had previous radiation. Difficult operation is often met with in cases where there has been previous thyroiditis with fibrosis, so some of the operative difficulties ascribed to radiation probably have no relation to previous radiation. However, if the

cases are properly selected for radiation it is very seldom that surgery will ever be needed. At times it has been mentioned that hypothyroidism is liable to be produced. After treating over four hundred cases of hyperthyroidism by radiation (two hundred of these being reported in 1921) and also after raying many cases of malignancy of the glands of the neck, where the thyroid received very large doses of ray, we have never seen a case of myxedema develop. This coincides with the experience of many radiologists throughout the world. If during treatment the metabolism is watched and treatment discontinued while the metabolism is still somewhat increased, no fear of producing myxedema need ever be entertained.

VALUE OF METABOLISM TEST

The metabolism test is invaluable in radiation treatment of hyperthyroidism. Often after treatment is instituted there is a slight increase in the metabolic rate and both the patient and the physician may be discouraged. If, however, the treatment is continued it will be noticed that the patient is beginning to recover from the nervous symptoms, pulse is slower, muscular weakness disappears, and there is a gain in weight. At the end of three or four months the metabolic rate is lower or may even be normal. There is no need for discouragement even if at the end of two or three months there is still an increased metabolic rate, as some patients are six months in returning to normal. Many patients are persuaded to go to the surgeon after a few radiation treatments who could be entirely cured if the treatment were only continued.

TREATMENT

The severe cases of hyperthyroidism should be kept in bed and the patient kept under the observation of a competent internist, using the same routine that the skillful surgeons have used lately to lower the surgical mortality. Iodin in the form of Lugol's solution may be used before and during radiation treatment, in the same manner it is used by the surgeon in preparing the patient for operation. The radiologist should exercise the same painstaking care as the surgeon does in these serious cases, because radiation is a destructive procedure of the hyperactive cells and should be considered to be of the same major importance as is the surgical destruction of the hyperactive thyroid gland. Many of the milder cases may be able to continue light work while taking the radiation treatment, which is often a factor of great economic importance. The large number of patients who are seen with increased metabolic rates and moderate hyperthyroidism, and who may be treated so easily and effectively by radiation, without mortality, leads us to believe this method of treatment should always be given first consideration.

1407 South Hope Street.

DISCUSSION

LYELL CARY KINNEY, M.D. (1831 Fourth Street, San Diego)—Doctor Soiland's paper is a comprehensive and impartial statement. However the case is to be handled, the successful treatment requires teamwork. The radiation is given at long intervals and should be considered as only a part of the general care of the patient. At all times the patient should be under

the care of a competent internist who will direct the rest, diet, and medication while the radiological consultant sees the case at proper times to determine his therapy. This cooperation frequently results in success not otherwise obtainable.

The determining factor in therapy is the metabolic rate. This curve should be frequently checked at least before each radiation series. As Doctor Soiland states, a proper metabolic check is complete insurance against over atrophy of the gland. It is a reliable indication of the amount and frequency of the treatment required.

The value of radiation is beyond question in mild cases of hyperthyroidism in young people and in post-operative cases with persistent symptoms. In advanced cases with large fibrous thyroids and with definite visceral changes lobectomy offers a much higher percentage of cures and is more prompt and certain. Here radiation should be reserved for post-operative treatment or poor surgical risks.

The radiation therapy of hyperthyroidism in selected cases is safe and satisfactory in expert hands, but it requires the same clinical judgment and technical exactness as does the surgical management. The average minimum time required for radiation control of hyperthyroidism is not less than three to four months. The patient should understand these facts and the treatment be undertaken seriously and systematically for at least that period of time. Lightly to refer a patient for "a few x-ray exposures" is worse than useless.

✽

J. MARION READ, M.D. (870 Market Street, San Francisco)—I am very glad to have heard this paper of Soiland, Costolow, and Meland. The radiation therapy of hyperthyroidism has long interested me, but only as an internist anxious to employ any measure which is apt to help the patient, and is also free from danger. It is in this light that I view radiation therapy of hyperthyroidism and upon this basis that I employ it. I am not convinced that thyroidectomy is a rational procedure nor the best therapy in this condition. This does not refer to so-called toxic adenomata because the presence of multiple nodules is evidence of the gland's loss of ability to function normally, and its surgical removal then becomes advisable.

In a considerable series of cases of Graves' disease I have used radiation therapy, and in this journal (January, 1924), I reported fifty cases somewhat in detail. I wish I could be as certain as the authors of this paper that the roentgen ray "cures by destroying and shrinking a large number of the hyperactive cells." While still using radiation, empirically, in the non-surgical treatment of Graves' disease I do not regard it as curative, for it is directed only at the thyroid (and sometimes thymus) and the belief has forced itself upon me that this is not a disease primarily of the thyroid and that measures directed solely at this gland will prove unsatisfactory in most cases. As far as the thyroid participates in the pathologic physiology of Graves' disease iodine will effectually take care of its hyperplasia and vascularity.

I agree with the authors regarding the necessity of patience in the employment of radiation and would even extend the time of treatment to six months, and then not be surprised if the patient did not fully recover for three years. The too early discharge of thyroidectomized patients as "cured" accounts for the number of such patients seen by every internist. The patient with Graves' disease should be under medical supervision for three years regardless of the form of therapy employed.

There is one point upon which I wish to differ from the authors and that is the advisability of radiation therapy in thyroidectomized patients. I believe these patients who continue ill after operation should have other therapy than that directed to the thyroid gland. The only cases of myxedema I have seen after roentgen-ray therapy were in patients who had also

had thyroidectomy. One may say it was the thyroidectomy alone which was responsible, since this unfortunate result no longer occurs with modern, well-controlled radiation therapy, but does follow after thyroidectomy in a certain number of cases.

✽

WILLIAM HENRY GILBERT, M.D. (520 West Seventh Street, Los Angeles)—As a general surgeon I have always taken a deep interest in treatment of the various forms of goiter. Unfortunately, like the treatment of cancer, it has been divided into medical, radiological, and surgical. We have reached a stage in the treatment of cancer where anything that will aid in the cure of the disease is adopted. In a measure this is true of the treatment of goiter. I have been particularly impressed by the results acquired with x-ray in the treatment of the exophthalmic type of Graves' disease. So pronounced has been the benefit at times that cases which were inoperable had been rendered safe risks by its use. I have seen the metabolism drop from thirty to sixty points in thirty days and in numerous instances the metabolism drop was accompanied by a decided reduction in the size of the gland. The question of how much to remove at the time of the operation is one that cannot be answered with any degree of accuracy. The surgeon depends upon his experience and judgment, and in the summing up of results the personal equation of the operator has to be taken into consideration. It is no uncommon thing for the metabolism rate to stay considerably over plus twenty after thyroid surgery. This incident I have noticed many times after operation by the most competent surgeons. Having my own metabolimeter and x-ray equipment I have been in a position to test many cases of postoperative hyperthyroidism. It is discouraging to a patient who has undergone a thyroidectomy to have within a year a gradual relapse of the old condition, and when one advises another operation it is difficult to convince him that the first operation was not a failure and that the second procedure is justified and necessary. Personally I am not in so great hurry to reoperate on these patients as formally because I have found that many of them make a complete and satisfactory recovery by the judicious therapeutic use of the x-ray. I am deeply interested in Doctor Soiland's paper and feel that every surgeon who investigates x-ray therapy in the treatment of thyrotoxicosis will find that it is a valuable assistant. This is especially true in the treatment of the exophthalmic type of the disease.

I know something of the work done by Doctor Soiland in Los Angeles and can testify to the truthfulness of his assertions and the excellence of his results. I have repeatedly operated on patients who have been x-rayed and I have no recollection of the difficulties reported as the result of x-ray therapy. I am satisfied that thyroiditis is more often the cause of surgical difficulties than radiation. It is hard for surgeons to keep an open mind when any remedy for toxic goiter other than some favorite surgical procedure is suggested. Personally I am for what is best for the individual patient, and I am satisfied that in the x-ray we have a valuable remedy, both in curing the disease and in preparing patients for operation.

✽

DOCTOR COSTLOW (closing)—I wish to express my appreciation for the constructive discussion of this paper.

I certainly agree with Doctor Read that the so-called disease of hyperthyroidism or exophthalmic goiter may not be a disease primarily of the thyroid gland and that measures directed solely at this gland may prove unsatisfactory. In radiation treatment the thymus is always included, and often in women, where the improvement is slow following radiation of the

thyroid and thymus, the ovaries are radiated. In a number of these patients we have seen a rapid decline in the metabolic rate, and improvement of symptoms follow almost immediately after mild radiation of the ovaries.

Just what the connection is between the chain of glands of internal secretion and the symptoms of hyperthyroidism is not definitely known, but it certainly seems to exist. If surgical destruction or removal of part of the thyroid is a logical procedure in the treatment of hyperthyroidism, certainly the x-ray destruction must be equally as logical, with the additional advantage that this agent may also be used to influence the thymus and possibly other glands of internal secretion.

We cannot agree with Doctor Read that it is inadvisable to radiate thyroidectomized patients. Our experience agrees with what Doctor Gilbert has just said, that many of these cases make a complete and satisfactory recovery if radiation is given. Other therapy may be used advantageously and will not interfere with the radiation treatment. As stated before, we have not seen myxedema following thyroid radiation.

It must be remembered that radiation treatment of hyperthyroidism is much newer than surgical treatment and sufficient time has not elapsed for the accumulation of statistics comparable with those of surgery, although a great deal of this work has been done all over the world in the past ten years. This method is not advised as the only method of treatment in hyperthyroidism, but, as has been shown, if used in properly selected cases it is equally as scientific and efficient as any method available at the present time and without mortality.

PULMONARY ABSCESS—POSTOPERATIVE*

By LEWIS FRANCIS MORRISON, M. D.
San Francisco

DISCUSSION by *Leo Eloesser, M.D., San Francisco; Emile Holman, M.D., San Francisco; Harold Brunn, M.D., San Francisco; William J. Kerr, M.D., San Francisco.*

THIS paper comprises a report on data available at the University of California and San Francisco County hospitals from 1913-1927.

During the fourteen-year period 241 patients with lung abscess have been cared for in the two hospitals; of these 241, there are 40 patients (20, University of California Hospital and 20, San Francisco County Hospital) with a definite history of onset of symptoms following sufficiently near to some operative procedure to lead one to believe that the abscess resulted from the operation or procedures intimately associated with the operation. The remaining 201 may be grouped as: (1) a small number of known etiology such as those of parasitic origin; (2) those with history of onset insufficient to justify the association of the abscesses with some operative procedure; and (3) those whose etiology is unknown except for the fact that they "caught cold," had a "bad cough" and "have been coughing up foul sputum ever since." This paper discusses the forty postoperative lung abscess

case histories and offers but brief consideration of the remaining 201 cases.

INCIDENCE

It is unfortunate that complete data essential for the determination of the incidence of lung abscess as a complication of tonsil operation is difficult to obtain. In the available histories the facts associated with the original onset of the condition are too brief to be of much value for statistical consideration. A typical history often lacks such important details as: place of operation, date of operation, operator, anesthetic employed, immediate postoperative course, etc. The typical history of the patient with lung abscess following tonsillectomy reads somewhat as follows: "Some time ago the patient had a tonsillectomy. The immediate postoperative recovery was uneventful and the patient was discharged to his home on the following morning. Three days later the patient caught a 'cold' and it seemed to settle on his chest. On the following day something broke in his chest and he spit up a relatively large amount of foul-smelling sputum." And so it goes on to describe the subsequent events in the course of the condition. In all instances it was possible to ascertain from the hospital records that the majority of these patients had been operated on elsewhere, had gone through a gradual series of "ups and downs," both physical and financial, and during one of the "down" periods had applied for aid at either the University of California or San Francisco County hospitals.

The history of lung abscess subsequent to operations other than tonsillectomy is, in many respects, more complete. These other operative procedures necessitate hospitalization of the patient for a week or more, during which time the abscess had had time to manifest itself. It is also a fact that the pulmonary status of such postoperative patients is watched more carefully than is that of the tonsillectomized patient.

Twenty of the forty postoperative lung abscess patients here considered followed some operative procedure performed in one or the other of the two hospitals. Histories of the twenty following tonsillectomy show that only four had been operated on in either of the two institutions. This leaves sixteen posttonsillectomy patients to be distributed among the other hospitals of this and the relatively adjacent communities because the records also show that the average lung abscess patient does not wander very far.

The ratio of occurrence of pulmonary abscess following tonsillectomy falls well within that presented by other investigators, in that during the period from 1913-1927 there were approximately 19,000 tonsillectomies performed at the two hospitals with only four lung abscesses, or in other words one in 4800. If the records of the other nearby hospitals were available they would,

* From the Department of Otorhinolaryngology of the University of California Medical School.

undoubtedly, contribute additional data which might materially alter the above ratio of incidence.

TABLE 1
Sex and Age Distribution

Years	1-10	10-20	20-30	30-40	40-50	50-60
S. F. H.	0	4	4	5	4	3
U. C. H. *	1	4	4	3	3	4
* Age of one patient not stated.						
<i>Males</i>						
S. F. H.						16
U. C. H.						11
Total						27
<i>Females</i>						
S. F. H.						4
U. C. H.						9
Total						13

ONSET OF SYMPTOMS

The symptoms of pulmonary lung abscess following operations are sufficiently different to justify a classification into two definite groups. One group is composed mainly of patients with postoperative abscesses other than those following tonsillectomy. In these there is early evidence of pathological changes in the lungs. The temperature takes on a septic swing. The patient is more or less toxic. Notes made in the histories at this time are usually to the effect that the patient has a post-operative pneumonia. The condition progresses rapidly and on the third or fourth postoperative day there is a sharp pain in the chest, following or during a coughing spell and the patient gives the characteristic statement that "something broke in his chest and he coughed up some foul-smelling sputum."

The other group is composed, mainly, of the posttonsillectomy patients. These leave the hospital on the day following operation, and with the exception of a sore throat, feel fairly well. On the second, third or fourth postoperative day they "catch a cold." The cold becomes worse, is augmented by a cough and some time between the fifth and fourteenth days the abscess ruptures.

LOCATION OF ABSCESSES

The right lung is by far the more common site of abscess formation. Twenty-six of the forty patients (65 per cent) showed involvement of only the right lung. Nine (22.5 per cent) showed involvement of only the left lung and the remaining five (12.5 per cent) had multiple abscess formation.

TABLE 2
Distribution of Abscesses

	Right Upper	Right Middle	Right Lower	Left Upper	Left Lower	Multiple
S. F. H.	4	4	6	1	2	3
U. C. H.	3	3	6	3	3	2
Total	7	7	12	4	5	5

Examination of the x-ray plates and other available roentgenographic data showed the majority of the abscesses to be more peripheral than

central. Locating them roughly, their position is approximately that of the mid portion of a tertiary bronchus. This fact may have some bearing on the etiology.

MORTALITY

Regardless of the treatment employed there is no marked difference between the mortality rate of the posttonsillectomy lung abscesses and those which followed some other type of operation. According to the last follow-up reports ten (50 per cent) of the former and eight (40 per cent) of the latter are still living.

TREATMENT

Treatment has been, with a single exception, medical, mainly expectant and supportive, for the first three months. The exception was a patient who was bronchoscoped at the end of three weeks and a dark sanguinomucoid plug and the mucopurulent material behind it removed from a right lower secondary bronchus by suction. The patient showed marked improvement following this procedure and made an uneventful and speedy recovery. In general, surgery had been delayed until several months had passed and then only employed as a last resort.

PROGNOSIS

Postoperative lung abscess is a grave complication with the chances of recovery against the patient. Even the opportunity of living a relatively comfortable and useful existence is not often open to him. The outlook during the first six months may not appear so dark, nevertheless during this period the patient's future is settled. Either he responds to medical treatment and fully recovers, or responds sufficiently to warrant surgical interference; or he may run a chronic course and be discharged to his home "improved" or "unimproved." The majority of the patients come under this last heading. The records show that once or twice during each of the subsequent years it is necessary for him to be readmitted to the hospital for a one or two months' stay. During the remissions the patient is not in good physical condition. The amount of sputum may be reduced to a minimum, the odor and the other disagreeable factors may be almost nil, but he has within him a potential danger which cannot be ignored. Slight indiscretions are sufficient to bring about a flare-up. He is far more susceptible to the common upper respiratory infections than is the average individual and they are more serious for him. The average span of life of the patient with lung abscess following operation who survives the first six months is about three years. The patient with lung abscess following tonsillectomy tends to be of this chronic type more often than does the patient who develops a lung abscess following some other surgical procedure. However, the end result is about the same. If the condition persists for more than six months the prognosis is poor.

COMMENT

The first fact which presents itself for scrutiny is that of the total 241 patients admitted to the two

TABLE 3
Data on the Cases at the University of California Hospital, 1913-1927

Case No.	Date	Operation	Days Onset	Anesthetic	Treatment	Disposition
M6340	1913	Hemorrh'd	2-3	Ether	Med.	Improved
OG&M875	1918	Gyn.	1	Ether (400 cc.)	Med.	Improved
WC12262	1916	Gyn.	2	Ether (500 cc.)	Med.	Dead 30 days
WC9845	1915	Gyn.	5	Ether (360 cc.)	Med.	Dead 14 days
WC10664	1915	Gyn.	90	Ether (525 cc.)	Med.	Dead 60 days
S19644	1923	Lap.	2	Ether	M. & S.	Improved
S31160	1925	Laryngect.	6	Local	Med.	Dead 30 days
M12226	1921	Hernia	2	Ether	Med.	Dead 60 days
S9482	1915	Lap.	1	Ether (180 cc.)	Med.	Dead 30 days
M3886	1913	T. and A.	4-5	Chloroform	M. & S.	Cured 1 year
S14143	1917	T. and A.	2	Ether	Med.	Dead 21 days
M6821	1919	T. and A.	14	Ether	Med.	Unimproved
S15157	1920	T. and A.	1	Ether	Med.	Dead 2 years
M16929	1922	T. and A.	9	Ether	Med.	Improved
M8894	1920	T.	5	Ether	Med.	Dead 30 days
M13503	1922	T.	4	Ether	Med.	Dead 14 days
M18931	1922	T.	18	Ether	Med.	Dead 8 months
M18502	1922	T.	9	Ether	M. & S.	Dead 4 years
S31641	1919	T.	5	Ether	M. & S.	Dead 1 year
M30960	1925	T.	7	Ether	Med.	Improved

hospitals during the fourteen-year period from 1913 to 1927 only forty (16.6 per cent) followed some operative procedure sufficiently close as to warrant the statement that the lung abscess was the result of the operation or procedures immediately attendant upon the operation. From the remaining 201 patients ten more with abscesses of known etiology can be subtracted (two from inspired nut shells recovered promptly as soon as the foreign body was removed, two from echinoccus infection and the remaining six followed trauma to or punctured wounds of the chest wall and its contents). Tuberculosis patients with cavitation also are not included. Thus we have left for mention 191 patients with so-called primary lung abscesses of unexplained etiology. The typical history does state that the patient did have a "cold" or pneumonia some time just prior

to the onset of the symptoms of abscess formation but does not go into the details as to the exact chain of events immediately preceding the onset of the foul sputum nor does it mention whether this foul sputum came on suddenly or gradually. In these 191 case histories there was no mention of any recent operative procedure.

The second point is the small amount of attention given the subject of postoperative lung abscess in the English, French and German medical literature, but that the condition exists there as well as in this country is well established by the work of Bassin.

THEORIES CONCERNING ETIOLOGY

Discussion of the etiology of postoperative lung abscess is based in the main on the three most plausible theories of (1) aspiration, (2) hematogenous or embolic, (3) lymphogenous routes of

TABLE 4
Data on the Cases at the San Francisco County Hospital, 1913-1927

Case No.	Date	Operation	Days Onset	Anesthetic	Treatment	Disposition
D44391	1925	Orthoped.	8	Gas	Med.	Improved
D36187	1924	Lap.	4	Ether	Med.	Improved
D35876	1924	Hernia	4	Ether	Med.	Dead 14 days
D33036	1924	Lap.	4	Ether	Med.	Improved
D19871	1922	Lap.	5	Ether	Med.	Dead 18 months
D17827	1922	Dental	3	Ether	Med.	Dead 15 days
D25357	1923	Ca. Penis	7	Ether	Med.	Dead 16 days
D13617	1921	Lap.	4	Ether	Med.	Dead 13 days
D18915	1922	Prostate	2	Ether	Med.	Dead 30 days
D17688	1916	Orthoped.	4	Ether	Med.	Improved
D26895	1917	G. U.	2	Ether	M. & S.	Dead 60 days
D40966	1925	T.	14	Ether	*	Cured
D34891	1924	T.	5	Ether	Med.	Improved
D29328	1923	T.	7	Ether	Med.	Unimproved
D29925	1918	T.	5	Ether	M. & S.	Dead 2½ years
D19811	1921	T.	6	Ether	Med.	Dead 2 years
D20513	1922	T.	6	Ether	Med.	Unimproved
D21137	1922	T.	3	Ether	Med.	Improved
D25308	1917	T.	4	Ether	M. & S.	Unimproved
D54401	1926	T.	5	Ether	Med.	Dead 30 days

* Bronchoscoped on the twenty-first postoperative day.

infection, each with its respective proponent and group of adherents. Other theories have been advanced, but for the lack of intrinsic value or supporters or both, appear hardly worthy of further consideration.

Taking up the three theories in the reverse order of their popularity we have for first consideration the lymphogenous. Homans, in reporting on thirteen postoperative lung abscess cases, ten of which followed some type of oral surgery, states that "postoperative lung abscess following oral operations is more often in the upper lobes than other lung involvement, and this tendency suggests that the immediate aspiration from the mouth and throat is less of an etiologic factor than formerly supposed or generally believed." Clendening, in substantiation of this contention in favor of the lymphatic route of infection, cites the work of Grober, who, in the experimental animal, describes a direct lymphatic route of drainage from the tonsil to the apex of the lung. The relatively small number of lung abscesses of this type would lead one to believe that this theory is of minor importance. The fact that the majority of postoperative lung abscesses do not occur in the upper lobes, and when they do occur there are not commonly so situated as to show that the apex was first involved gives precedence to the other two theories.

It is not so easy to dispose of the hematogenous or embolic theory. There is no question that a certain number but not all of the postoperative lung abscesses are of hematogenous origin. The adherents of the hematogenous or embolic theory support their point of view by laying stress on the thrombosis of the blood vessels of the plexus tonsillaris, both before and after operation, and on the marked activity of the parts which tends to dislodge the thrombi. Histological studies of the tonsil show that thrombosis of the veins about the tonsillar crypts is not an uncommon finding, but there is no mention of the finding of thrombi in the larger vessels or in the veins of the plexus tonsillaris. The modern tonsil operation, by which the tonsil and its surrounding intact capsule are removed from the adjacent tissue along the natural plane of cleavage, offers but little opportunity to dislodge thrombi in the smaller veins about the tonsillar crypts into the blood stream.

The contention of those who prefer local anesthesia for tonsillectomies that the adrenalin incorporated in the injecting fluid acts as a prophylactic against postoperative lung abscess formation by contracting the larger blood vessels in the surrounding area and thereby prevents emboli from entering the general circulation is, perhaps, tenable for the short period of the operation and a few hours thereafter. It must be kept in mind that there is a period of secondary relaxation of the muscle coats of the blood vessels and an increased opportunity for possible thrombi therein to be cast into the general circulation. These thrombi may or may not be sterile. In association with this thought one must consider the works of Gottstein, Henle and Mikulicz, who, in their general surgical work, report more

pulmonary complications following local than general anesthesia.

Considered solely on the basis of available evidence it would seem that the hematogenous or embolic origin of postoperative lung abscess is far more tenable for the general surgical case than it is for the posttonsillectomy patient with the exception of those few instances where there is multiple abscess formation. In the former the operative area is greater, the blood vessels larger and more numerous and the manipulation of the parts at the time of operation, which is undoubtedly a factor in the dislodgment of pre-existing infected thrombi, is greater than are the same factors in a tonsillectomy.

The aspiration theory presents the most logical explanation of the route of posttonsillectomy lung infection and subsequent abscess formation. Myerson, by bronchoscopy, showed that in 200 tonsillectomies, 155 (77.5 per cent) of the patients had blood in the trachea or bronchi immediately after operation. Since it is possible to demonstrate the presence of aspirated blood it is more than likely that it was preceded by the mucus of the mouth and nasopharynx and the materials expressed from the tonsils during the early stages of the anesthetic and operation. The question naturally arises as to why there are not more postoperative lung abscesses. Myerson's point of view perhaps accounts for the relatively small number in that the mere aspiration of the blood and the preceding infected material does not necessarily result in abscess formation if it is coughed out or otherwise removed from the trachea and bronchial tree within a reasonable period of time. He states that the inhibition of the normal expulsion forces of the lung is the important factor in the production of lung abscess following tonsillectomy.

The failure of Holman and Aschner to reproduce the syndrome in the experimental animal by placing infected material in the trachea or by injuring the mucous membrane of the trachea and bronchi and placing thereon the infected material and the successful results obtained by the former author via the blood stream has been offered as definite evidence in favor of the hematogenous or embolic origin of the condition in the human and likewise as detrimental evidence to the contentions of the adherents of the aspiration theory. On the face of it the data is convincing, but further facts must be considered. The bronchial tree of the dog is more intolerant to foreign bodies and is much more efficient in removing them than is that of the human. The relative pathogenicity of the infecting agent must be taken into consideration when two routes of infection are employed.

PREVENTIVE MEASURES

It is unnecessary to clutter up the literature with further admonitions that the operator should know that the lung fields of the patient on whom he is about to operate are clear; that he is not suffering with an acute upper respiratory infection; that the position of the patient during the

operation should be such that the drainage of infected material, blood and mucous will be away from the larynx; that the advantages of the use of an adequate suction apparatus are many; and that loose teeth, sponges and portions of tonsils and adenoids should not be allowed to gain entrance to the trachea. These points are well discussed in the literature and the conscientious, well-qualified operator always keeps them in mind.

Summary of Data Presented

Total number of lung abscess cases	241
S. F. Hospital	162
U. C. Hospital	79
Total number postoperative lung abscess cases	40
S. F. Hospital	20
U. C. Hospital	20
Total number posttonsillectomy lung abscess cases	20
S. F. Hospital	9
U. C. Hospital	11
Average time of onset of symptoms:	
Posttonsillectomy lung abscess cases	6.5 days
S. F. Hospital	6.3 days
U. C. Hospital	6.6 days
Other postoperative lung abscess cases	3.5 days
S. F. Hospital	4.1 days
U. C. Hospital	2.6 days

CONCLUSIONS

1. Lung abscess may follow a tonsillectomy, but is not more probable than it is as a complication of other operative procedures.
2. With our present knowledge the lung abscess following the aspiration of infected material is the only preventable type.
3. The majority of the lung abscesses following tonsillectomy are of the aspiration type.
4. The hematogenous route of infection is possible, but it is not the common one.
5. The lymphatic route of infection is of minor importance.

490 Post Street.

DISCUSSION

LEO ELOESSER, M.D. (490 Post Street, San Francisco)—Doctor Morrison's paper represents the results of a considerable amount of work, yet I think that his figures and conclusions should not pass without a word of criticism.

The University of California records may give a fairly accurate statistical picture of lung abscess; those of the San Francisco Hospital, which I know intimately, do not. Under the heading "Abscess," the older files grouped all kinds of non-tuberculous suppurations of the lung—perforating empyemas and bronchiectases; these records would need careful processing to be of value. I suspect that the grouping of other pulmonary suppurations under the head of abscess accounts for the manifestly low ratio of 40 postoperative to 201 spontaneous abscesses. Of the abscesses that I see, more than half follow operation, especially tonsillectomy.

Doctor Morrison states that but four of the 19,000 tonsillectomies at these two hospitals were followed by abscess. It would perhaps be more accurate to say that he can find records of but four, for in the San Francisco Hospital the patients are admitted the day before and discharged the day after operation, so that many if not most of the postoperative abscesses escape observation.

I should be inclined to place the onset of symptoms later than Doctor Morrison—usually the abscess does

not make itself evident until the second week following operation.

Upon theoretical grounds Doctor Morrison reaches the conclusion that most posttonsillectomy abscesses are due to aspiration; that may be, but this is a question not easily settled upon which many able investigators have cracked their milk teeth. I shall not go into detail, such as the difficulty of explaining why posttonsillectomy abscess usually affects the upper and middle lobes, while proved aspiration abscesses—those occurring after aspiration of dirty sea water, vomitus, etc.—affect the lower ones, but I fail to find evidence in the figures presented in this paper that would justify me in drawing conclusions one way or another.

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EMILE HOLMAN, M.D. (Stanford University School of Medicine, San Francisco)—The prevailing opinion of clinicians in the general and special fields of surgery regarding the etiology of the postoperative pulmonary abscess is perhaps best expressed in the following statement by Hedblom: "From the standpoint of etiology, two facts seem definitely established, first, that the great majority of pulmonary complications following tonsillectomy are due to aspiration infection, and second, that the great majority of them followed operation under general anesthesia." Only a few writers dissent from this point of view, and their case is perhaps best presented by Fisher and Cohen, who say: "When it is remembered that the tonsil in the adult is almost always reeking with bacteria, liberated and perhaps forced into the circulation during an operation on the tonsil, and that the field of operation can never be considered surgically clean, it would appear that infection through the circulation is the most likely and probable way in which a lung abscess occurs." It is apparent from these widely divergent views, that the clinical evidence pertaining to this subject is sufficiently diverse as to make it available for whatever opinion a given writer may wish to emphasize.

From data, which the author admits are distressingly incomplete, and in spite of a lack of observations on the immediate postoperative course following tonsillectomy, the author concludes that "the majority of lung abscesses following tonsillectomy are of the aspiration type." Until laryngologists will observe closely the patients' course following tonsillectomy by daily examinations of the chest and by immediate and repeated roentgenograms whenever a pulmonary complication is manifested so as to ascertain the character of the early changes in the pulmonary fields, there is little justification for this conclusion. Many of the simpler postoperative pulmonary complications following intraabdominal and other operations give physical and roentgenographic evidences of infarction which are unmistakable. Most of these pulmonary changes disappear spontaneously. If patients under observation after tonsillectomy presented a similar picture of infarction, followed by the development of a pulmonary abscess, definite evidence would be available in favor of the embolic theory. And, conversely, the absence of such evidence would be important. More exact observations during the first twelve days following tonsillectomy are imperatively needed to determine the exact course of events preceding the establishment of a frank intrapulmonary abscess. At the present time these patients are always at home during the early postoperative period and any deductions as to what might have occurred during this time are at present of little value.

On the basis of the onset of symptoms, the author classifies pulmonary abscesses into "two definite groups": One "mainly composed of the abscesses other than those following tonsillectomy," and one "composed mainly of the posttonsillectomy abscesses." From descriptions given by this writer and by other authors, the two groups have too many points in common to warrant such a definite division. Furthermore, little evidence is presented to support the statement that "the hematogenous or embolic origin of postoperative lung abscess is far more tenable for

the general surgical case than it is for the posttonsillectomy patient." Perhaps the more exact and definite knowledge which is available concerning the immediate course following the general surgical operation is responsible for the present feeling that the abscesses following these operations are embolic in origin. The experimental evidence available, showing that intrapulmonary abscesses can be readily produced by the introduction of septic emboli into the blood stream, suggests that the postoperative abscesses seen clinically are largely due to infected emboli from the operative field.

I congratulate the author upon placing so large a series of pulmonary abscesses on record for statistical study and interpretation.

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HAROLD BRUNN, M.D. (384 Post Street, San Francisco)—The route of infection in abscesses of the lung is one that is still under very much discussion. It can of course be approached both from the clinical side and the experimental side. It is always very difficult, when looking over a long series of cases of hospital records with which one has had no intimate contact, to form definite judgments as to causations. Unless at the time of taking the history, one is particularly interested in bringing out the facts, we have found that in those cases with which we are conversant, they are frequently woefully lacking in a true statement of the actual state of affairs.

Recent experiments on animals have shown the possibility of creating lung abscesses both by the embolic and by the aspiration route. Both modes of infection are possible, and it is difficult clinically always to state the route of infection. One is inclined to believe, however, that those cases that take a poor anesthetic, with much mucus and coughing, and within twenty-four hours develop symptoms of an abscess, that such cases are aspiratory rather than embolic in origin. In many of the cases which we have had following tonsillectomies, such a history with a rapid onset of symptoms, has led us to believe that aspiration was the cause. In other cases with a late onset—after a week—it is more probable that the embolic theory would best explain the origin of the lung abscess.

The lesson to be learned is—first—that in order to avoid emboli, wounds should be carefully handled with as little retraction as possible, and—secondly—that a quiet anesthetic not too deep so that the cough reflex may come back early, with proper hygiene of the mouth such as using Berwick's dye as a preliminary, would tend to diminish also the aspiration route of lung abscesses.

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WILLIAM J. KERR, M.D. (University of California Medical School, San Francisco)—The author is to be congratulated upon his report of postoperative lung abscess cases. Statistical studies in this direction have been meager because many patients who develop pulmonary complications after tonsillectomy have their symptoms after leaving the hospital. In many instances they probably report to other physicians or go to other hospitals for subsequent treatment.

The incidence of pulmonary complications after other operations which require longer hospitalization during convalescence are more generally recognized and studied. I think that one who has followed the literature of postoperative lung abscess, or other pulmonary complications, is impressed with the divergent opinions as to the cause of the involvement of the lung. There cannot be much doubt, I think, that where lung abscess or other pulmonary complications arise, following operation under local anesthesia in different parts of the body, that the process is more likely to be an embolic one.

However, lung abscess that occurs following tonsillectomy or other operations on the throat or pharynx may have two routes of infection. I think that the work of Lemon and his associates indicates the possibility, in fact the strong probability, that operation on the tonsils will lead to pulmonary infection. The abolition of the cough reflex during

anesthesia here plays apparently a very important rôle in the spread of the infection along with the inhalation of infected material.

The statistical studies that have been reported from different parts of the country indicate that in those centers where tonsils are done with the patient in a sitting posture, or without proper local drainage, there is greater incidence of pulmonary complications than where suction is used at the time of operation, or where the patient's head and shoulders are kept in a lower position. One cannot escape the suggestion that has been made by some that infected thrombi in the peritonsillar vessels may break off and be carried to the right heart, thence to the lung, or that infection may spread by way of lymphatics to the pulmonary tissues.

The diagnosis of lung abscess, whether it follows a tonsillectomy or any other operative procedure, or whether it follows some other infection in the lung, has at times been somewhat difficult to make. The x-ray, of course, is of tremendous value in locating the abscess in the deeper tissues. We have not been particularly impressed by the use of the injection of opaque oils, such as lipiodol, because of the difficulty of getting this material in the abscess cavity. Bronchoscopy, with injection of the opaque oil at the same time where the injection could be properly directed, may at times show the limitations of the cavity or cavities.

In the treatment of lung abscess we must keep in mind the fact that a fairly high percentage of the cases will recover without surgical intervention. Rest, diet, inhalations of various type with postural drainage may be all that is necessary to bring about a cure. However, if the cavities do not empty freely, we have found it of value to do a bronchoscopy which may help to open up the channels to the bronchi or, by washing out the cavity, we may assist in the drainage. If the abscess is close to the chest wall and does not heal by the expectant method, surgery should be given consideration. If the lung is not adherent to the chest wall, pneumothorax may be of great advantage in helping to clear up the process. The most difficult problem that we have in the treatment of lung abscess is seen in the patient who has gone on for weeks or months, who is more or less stationary with mild attacks of fever and general symptoms of abscess cavity, showing a fairly thick fibrotic wall. It is in this group of cases that medical treatment will probably be of little value. Artificial pneumothorax may even in these be of some help, but more likely will require surgery, either with drainage or with drainage and cautery.

ARSENICAL OPTICAL NEURITIS—WITH SPECIAL REFERENCE TO SYPHILIS *

CASE REPORTS

By GEORGE NEWTON HOSFORD, M.D.
San Francisco

DISCUSSION by Lloyd Mills, M.D., Los Angeles; Milton B. Lennon, M.D., San Francisco; Lovell Langstroth, M.D., San Francisco.

THIS subject was brought to my attention in January, 1926, by the following cases:

A man of 25, whom I had refracted two months before, came to me with a history of blurring of vision, which had begun rather suddenly. I had noted, when I first examined him, an extensive disseminated choroiditis which had involved the right macular region and had missed the left macular region by a fraction of a millimeter. His vision with his correction was 0.2 in the right

* From the Department of Ophthalmology, University of California.

Read before the Eye, Ear, Nose, and Throat Section, California Medical Association, at its Fifty-Sixth Annual Session, April 25-28, 1927.

eye, and normal in the left. The disease process was obviously of long standing. The patient was an ignorant workman and would not undergo the extensive examination which is often necessary to determine the cause of such a condition. I felt that the damage had been done, so merely refracted him. When he returned I expected to find an exacerbation of his choroiditis, but instead he had numerous very minute deposits on Descemet's membrane in both eyes, and his optic nerves and the adjacent retina were edematous and slightly hyperemic.

In the two-month interval, between the time when I refracted him and his second visit, he had acquired a chancre. He had gone immediately to a doctor, and the doctor had instituted treatment. When I saw him with his optic neuritis he had received four doses of neosalvarsan and was having daily mercurial inunctions.

Now the question arose, "Was the neuritis due to the syphilis or to the neosalvarsan?"

VIEWPOINTS IN THE LITERATURE

The standard textbooks of ophthalmology state that it is due to the liberation of luetic toxins. The treatment advised is to continue the use of the drug, or even to increase the dose. I discussed the matter with a neurologist and he was of the same opinion and cited cases of his own where he had obtained an increased cell count in the cerebrospinal fluid in comparable cases. This, he interpreted as a reaction to the invasion of the central nervous system by the *Spirochaeta pallida* even at that early stage of the disease.

On the other hand, we know that among the untoward actions of arsenicals is irritation of nervous tissue.

OPTIC NEURITIS FOLLOWING SALVARSAN THERAPY

The ocular manifestations of syphilis have interested all practicing physicians for years, and in going through the literature we find, in the reports of societies, whole sessions devoted to the discussions of ocular lues. These reports begin to have a particular interest for us about the year 1910, when salvarsan was introduced by Ehrlich.

The eye section of the British Medical Association devoted a session of its 1912 meeting to the consideration of lues of the eye and its treatment by salvarsan. There were a number of carefully prepared papers on various phases of the subject, and much earnest discussion.

Doctor Walker of Liverpool had seen several cases of optic neuritis following the administration of salvarsan and admitted frankly that he did not know whether the neuritis was due to the disease or the drug. He cautioned his colleagues not to forget general principles and to remember their experiences with atoxyl. Blindness from atoxyl was not reported until two years after the introduction of the drug and then, within a few months, over two hundred cases were reported in the literature by different workers.

In 1913 the St. Louis Medical Society held a symposium on ocular syphilis. One paper by

William F. Hardy reports two cases and refers to a third treated by another oculist. In the first case a very violent bilateral neuroretinitis occurred four weeks after an injection of salvarsan. The neuroretinitis was attributed to the lues and another salvarsan given. The disease progressed from bad to worse, and the patient became blind. A second case received one injection. Three months later the patient developed a neuroretinitis and iridocyclitis. Inunctions and local treatment were ordered and the condition improved under these measures. The result, however, was practical blindness, as it was also in a third case.

He admits, as anyone would, that the salvarsan may have had nothing to do with these unfortunate results, particularly in the second and third cases. Such things may happen under mercury alone. A hitherto well eye may become inflamed, while a similar process is subsiding in the other eye, with the patient thoroughly mercurialized at the time.

On the other hand, in the same meeting we have John Green, quoting a German report, where 63 per cent of seventy-six cases of neuroretinitis had a rapid and satisfactory result. Ehrlich himself, however, warned against the use of salvarsan in any patient who showed signs of optic neuritis, and it was some time before the ophthalmologists ventured to use it in such cases. Green concludes that when such lesions are certainly luetic salvarsan is indicated, although the best results are obtained when the drug is combined with mercury and iodides.

The report of the discussion of the treatment of syphilitic eye lesions by the Ophthalmological Society of the United Kingdom occupies fifty pages of their transactions in the year 1916.

On the question of salvarsan and optic neuritis J. B. Lawford quotes from a monograph by Dor the following evidence: "In records published from 1850 to 1911 he found five cases of severe papillitis and gumma of the optic papilla; between 1911 and 1914 he found ten." Wernicke gives the following facts: "In 1912 a death occurred in Odessa, following the administration of salvarsan. This led to a temporary abandonment of the drug by the medical men of the town. They reverted to mercurial treatment alone. During the twelve months, in 1911 and 1912, while salvarsan was in use, he had referred to him ten cases of acute optic neuritis in syphilitics treated with the drug. In the subsequent twelve months, while the drug was not in use, not a single case came under his observation.

In 1923 we find the pendulum swinging the other way. In this year a paper on the treatment of ocular syphilis was read by E. A. Shumway to the College of Physicians of Philadelphia. In this paper he devotes a paragraph to the conditions we have been considering. He says: "In luetic optic neuritis mercury has always been successfully employed. When salvarsan was introduced many cases of optic neuritis were discovered, and it was assumed that they were due to an arsenical intoxication, which had undoubtedly been the case with previous use of atoxyl. Many

controversies as to the true nature of these so-called neurorecidives were carried on and progress in the treatment of syphilis of the central nervous system was greatly retarded because of the fear of their appearance. Syphilologists found, however, on more careful examination of their cases before treatment that the frequency of such lesions was nearly as great as those reported due to salvarsan, and fortunately it was found that additional large doses of salvarsan, administered after the development of the nerve lesions, had a tendency to cause a disappearance of the symptoms, and nearly all ophthalmologists follow the advice of syphilologists in advocating the use of combined treatment with salvarsan injections and mercury, obtaining in this way as intensive a therapy as possible, in order to avoid the blindness which must result from long-continued inflammation."

As he unfortunately speaks in generalities, and does not give case records and statistics, one is inclined to be skeptical as to the value of this opinion.

A particularly able discussion of the ocular effects of tryparsamid by Cady and Alvis of St. Louis appeared in the *Journal of the American Medical Association* of January 6, 1926. The literature of the subject is reviewed and is inclusive just as in the condition we have discussed. Their own series consisted of 153 patients who were considered normal. That is, they had no recognizable signs of neuritis, atrophy or diminution in visual acuity or perimetric fields. There were also twenty-seven cases considered abnormal because of the presence of one or more of the foregoing signs or symptoms.

Of the 153 normal patients eight, or 5.2 per cent, had sufficient manifestations to warrant their tabulation. Among this eight, three had slight contraction of the fields which disappeared after temporary withdrawal of the drug, and of five with marked constriction two failed to improve. So that 1.3 per cent of normal patients were injured by the use of tryparsamid.

Of the twenty-seven abnormal patients ten, or 37 per cent, became worse. Six of the ten had recognizable atrophy at the start, while four had slightly, or moderately, constricted fields at the start. Four, or 14 per cent, of the twenty-seven were noticeably improved, while thirteen, or 48.2 per cent, remained the same. Three of the patients with optic atrophy progressed to blindness. The patients who suffered permanent injury were treated early in their experience with the drug.

EXPERIMENTAL STUDIES

So much for clinical reports. Now let us turn to the experimental phase of the question:

In 1924 an article by Young and Loevenhart of the University of Wisconsin on "The Relation of the Chemical Constitution of Certain Organic Arsenical Compounds to Their Action on the Visual Tracts" appeared in the *Journal of Pharmacology and Experimental Therapeutics*. It is a masterly investigation into an exceedingly complex subject. They investigated merely the

power of these compounds to produce changes in the optic tracts, and not the nature or mechanism by which such changes were produced. Their method was first to determine the minimal lethal dose for rabbits for each compound. They then took a group of animals, from three to twenty-three in number, upon which to try each compound, and injected them intravenously at weekly intervals with a dose that averaged about 25 per cent of the minimal lethal dose. For example, they took twenty rabbits and gave them tryparsamid. The M. L. D. was found to be 1.25 grams per kilo. Twenty-five per cent of this was computed for each rabbit, and given in an ear vein once a week. At the same time the rabbits were examined with the ophthalmoscope. The number of doses given varied considerably, but if lesions were not produced sooner they were given eight to twelve doses. At the end of the experiment the animals were killed by air embolism and the eyes taken for microscopic study. The eyes of six normal rabbits were studied as controls.

The nineteen compounds studied were divided into five groups on the basis of their structure. First they studied representative inorganic arsenicals; next, organic arsenicals without an amino group; and finally, arsenicals with the amino group in the ortho, meta, and para position, with reference to the arsenic.

In four of these classes the arsenic may be either trivalent or pentavalent. At least one trivalent and one or more pentavalent compounds were used in each group. Three arsenical compounds are known to produce visual tract lesions: *viz.*, atoxyl, arsacetin, and tryparsamid.

The three have certain characteristics in common: (1) The arsenic is pentavalent. (2) They all have an amino, or substituted amino group, occupying the position para to the arsenic.

All of these substances produced lesions in rabbits, as did also several others of the same general structure. The ophthalmoscopic appearance usually began to change after the third or fourth dose. The optic cup would become filled, the nerve head blurred, and in the more marked cases there were hemorrhages in the retina and the vitreous became cloudy.

Arsphenamin and neoarsphenamin in which the amino group, or substituted amino group, is in the meta position were tried out on only three rabbits each, but the experiments ran for thirteen weeks with the arsphenamin, and nine with the neoarsphenamin. No lesions were produced. There is a footnote on neoarsphenamin stating that the minimal lethal dose varied from 150 to 275 milligrams per kilo, depending on the drug and the company that made the drug. This may be a clue as to why some patients develop optic-tract lesions from neosalvarsan, and why the great majority do not. Of course these experiments do not accurately reproduce the condition that we face in the human subject. The rabbits were not diseased, and the susceptibility of the human optic tract may differ from that of the rabbit to the same arsenical compound. The experimenters quoted were aware of this and, in fact, called

attention to it. The dosage used in the experiments were also greater than would be administered to human beings.

It may be false logic to withhold arsenicals in cases of syphilis showing optic-tract lesions, and time may show that these are the very cases where such therapy is most valuable, but in the present state of our knowledge of the subject it seems wise to proceed with caution in these cases.

In the patient who was under my observation, improvement in the optic neuritis was observed within two weeks after the neoarsphenamin was discontinued. Within six weeks all signs of the inflammation had disappeared. His antiluetic treatment was continued with mercury and bismuth, and I feel that our course in stopping the arsenical was probably correct.

490 Post Street.

DISCUSSION

LLOYD MILLS, M.D. (609 South Grand Avenue, Los Angeles)—Several years ago a physician came to me with a story of a minor incision of a finger occurring during an operation on a syphilitic patient. He gave this wound immediate attention, no local lesion developed, and repeated Wassermanns were negative. In spite of this he developed a definite and increasing syphilophobia. To allay his fears he went to a number of physicians and pleaded for a protective course of salvarsan from each on preventive grounds, stressing his psychic need.

I saw him after about two years of treatment and found a definite hemorrhagic neuroretinitis. The inevitable outcome was explained to him and every attempt made to deter him from further treatment, but he persisted and when last seen was blind from total arsenical atrophy of both optic nerves and central retinal degeneration.

A second case of cured syphilis, with negative Wassermanns for several years, was treated with neoarsphenamin every three months. Each injection was followed, in the eye having a posterior polar cataract, by a definite inflammation of the optic nerve which gradually began to whiten. These treatments were concealed until the man was obliged to disclose his history or go elsewhere. Improvement in the ocular condition followed and has been maintained since discontinuing these needless injections.

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MILTON B. LENNON, M.D. (380 Post Street, San Francisco)—Doctor Hosford's paper calls attention to a question that was first mooted shortly after Ehrlich had introduced salvarsan, a question that has not been fully answered even today.

That an optic neuritis can and does occur in the early stages of syphilis is indisputable—that it is a frequent accompaniment of late syphilis, particularly of the cerebral forms, has long since been recognized. Salvarsan and its various offsprings have increased the incidence of optic neuritis by a small percentage. This may be due either to its direct influence or by its freeing neurotoxins. The Herzheimer reaction is well recognized and is usually the result of using a small, almost tentative dose of salvarsan. A second generous dose will, as a rule, clear up the situation. Since this reaction is usually noted in patients beyond the early days of syphilis, it can be avoided by giving a preliminary course with mercury and iodides, and in generous doses. These invaluable remedies have been pushed too much aside since the introduction of salvarsan, and by many their true and extraordinary values are hardly recognized. They may not attack the spirochaetes with the valor of the salvarsan, but they can break down the products of syphilis whether these be arteritic, meningitic, or gummatous, in a way that salvarsan is in no way calculated to do.

We have little to fear in the way of an optic neuritis from salvarsan as is evidenced by few ill conse-

quences from its use amid its universal employment. Even in ill-advised overdoses sufficient to produce a polyneuritis that lasted for months there were no residual effects to the optic nerve. It is well to ask ourselves, in any given syphilitic patient with optic neuritis, if salvarsan is playing a part. A disturbed kidney function may be the cause. With an upset gastro-intestinal system I have seen an optic neuritis in a syphilitic cleared up by mild saline cathartics; hence we should not blame salvarsan for an optic neuritis until we are sure that nothing in our way of investigation or treatment is not primarily at fault.

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LOVELL LANGSTROTH, M.D. (490 Post Street, San Francisco)—The fundamental problem behind this question is just why a small percentage of patients treated with salvarsan preparations develops optic neuritis. Syphilitic infection may bear no relation to it at all. In fact, since the great proportion of syphilitics escape it seems possible that it is not a question of liberation of syphilitic toxins at all but entirely a reaction between this drug and certain susceptible persons. We have no accurate knowledge of the tissue qualities which make for this susceptibility, but from the frequency with which we find degenerative processes in the cardiovascular, locomotor and nervous systems of supposedly normal persons we may presume that degeneration is half the story. Persons with degenerative changes or with lowered resistance to infection stand strain very badly. In the case of Doctor Hosford's patient the marked choroiditis which antedated the syphilitic infection was perhaps a sign that this particular individual would not tolerate salvarsan.

THE LURE OF MEDICAL HISTORY

AMBROISE PARÉ

By JEAN OLIVER, M.D.

San Francisco

A PLUTARCH of the sixteenth century, writing of the great who had preceded him, would have chosen without doubt among his subjects two names that stand out in the history of science, Andre Vesalius and Ambroise Paré. For you remember, Plutarch, after describing the lives of his heroes, groups them in pairs and adds his "comparison," setting forth their similarities and differences and detailing in orderly fashion the first, second, and third "advantage" of one over the other.

In political affairs the opportunities for such estimates are perhaps easily found—kings, emperors, and statesmen present themselves automatically and their lives and deeds are public matters to be weighed and judged. It is otherwise in the history of science. But if ever the method were applicable to the subject of our interest, it is in the case of the two whom we have mentioned. So let us see what it will bring forth.

They were born to the same times—Paré three years the elder. But to what different conditions: Vesalius into a noble family, the aristocracy of medicine and the university—the great grandfather, physician to the Emperor and rector of the University of Louvain; the grandfather, a physician and author of mathematical treatises; the father, personal physician and pharmacist to the Princess—Governess of the Low Countries—



Figure 1—The "Thanacth" Monster

Paré the third of three sons of a country cabinet maker.

The contrast of their early life might be imagined from these conditions. Vesalius, trained in the classical humanities at Louvain, "does" his medicine at Paris and Montpellier, is admitted to the doctorate, and at the age of twenty-three becomes professor of anatomy at the University of Padua. Paré acquires, between intervals of domestic service with a priest, the elements of reading, writing and arithmetic, and, what was to prove in the end a boon to his country, even if an embarrassment to him, no Latin. Inspired by the operation of a traveling lithotomist on his master, the priest, he apprentices himself to a barber and after seven years in the provinces we find him in Paris "bound" to a master surgeon-barber. And so, between cleaning the shop, shaving patrons, and coiffures, he interns at the Hotel Dieu and at last is received into the company of barber-surgeons. Not until late in life, and then only by the influence of his friends among the great, does he receive the doctorate in order that he, the greatest surgeon of his time, may teach publicly. A contemporary describes the ceremony and smiles at the candidate's rendition of the Latin thesis which had been prepared for him in order that the requirements might be met. He read as best he could the words which had no meaning to "uneducated" eyes.

Both men used the armies of the times as a means of education, for here was material for the anatomist or the surgeon. Vesalius took no great pleasure apparently in these experiences, but throughout his life Paré was enjoying his camp bed with "its cover all sown with brilliant stars, more clear than fine gold" as he expresses it, following the wars, describing new methods of treatment, devising new operations, among these his greatest gift to surgery, the ligation of arteries in amputations. And furthermore, what was to be of exceeding importance to a Protestant such as he on the Bartholomew's Eve which was to come, during these campaigns his skill saved the lives of men, among them the Duc de Guise, who would later save his with their political influence. To live to the age of eighty and die in one's bed was an

achievement in itself for a Protestant of Paré's time. Doubtless his early hardships and his life with soldiers had taught him the art of living under perilous conditions with equanimity. Vesalius, with no such handicaps, too much the aristocrat to bend before the storm, could only go from controversy to controversy in a life that ended prematurely in tragedy.

In the books of these two men we see their essential differences. "Vesalius" in classical Latin, superb in its illustrations and form, is a treatise to marvel at. "Paré," a readable, rambling collection in the homely, forcible French of the day, is a book to be enjoyed. Here, too, is a contribution of Paré, not to medicine alone, for he should be grouped with Rabelais and Palissy as one who crystallized French prose and liberated it from the yoke of Latinity. No wonder that Ronsard should have graced his works with a sonnet, for here was another fellow artisan at the edifice of a national language which the "Pleiade" was building.

Contrasting with the formal well-planned text of the trained professor of anatomy we have the well-intentioned but somewhat disorganized recordings of a man who has gained his experiences slowly and with difficulty and whose childlike amazement before the wonders of nature in the end runs riot. So we see at the head of the list of chapters the very proper introduction to anatomy, followed by wounds, bandages, and operations. Then there succeeds such a "hodge podge" as gout, syphilis, pest, smallpox, poisons, the physiology of generation, culminating in the "Monsters" where are depicted the "thanacth" which we have illustrated and the "haiit, which lives on air alone." Can we imagine Vesalius concerned with such old-wives' tales!

The illustrations of the two books also differ in selection and treatment. Those of Vesalius with their classical beauty of the Italian Renaissance have never been equaled in the history of medical illustration. In Paré we find simple wood cuts, the majority showing surgical instruments and matters of technique of this practical man or the naive representation of strange animals and mythical monsters which had excited his wonder.

As to style, we must leave that of Vesalius to the appreciation of the Latin scholar, but can hazard a guess that it is as formal and correct as was the man. Paré's we can enjoy—homely, forceful phrases, savory of the talk of the common people of his day. It is easy to feel an intimacy with this kindly humored man who tells how he stopped one day to laugh with a crowd of children at the antics of a monkey who, he says, "monstroît son cul qui estoit tousiours á decouvert, á cause que son habit estoit court, de peur quil ne fust saffrané." Here surely is the touch, not of pity, but of vulgarity, which also makes the whole world kin.

So if you wish to know this man, get his "Apologies and Travels"—his story of his daily life in those troubled times will hold you like a novel.

2398 Sacramento Street.

CLINICAL NOTES, CASE REPORTS
AND NEW INSTRUMENTS

DIABETES MELLITUS WITH MYELOG-
ENOUS LEUKEMIA AND MILIARY
TUBERCULOSIS*

CASE REPORT

By HYMAN RAPAPORT, M. D.
Los Angeles

TO date there have been reported only three cases of diabetes mellitus with myelogenous leukemia, and only one case of diabetes mellitus with myelogenous leukemia and miliary tuberculosis, occurring simultaneously in the same person.

In 1892 Rebitzer¹ reported the first case of diabetes mellitus with myelogenous leukemia. Fitz,² in 1920, and Glaser,³ in 1927, have each reported a similar case. In 1905 Schwartz⁴ reported the first case of diabetes mellitus with myelogenous leukemia and miliary tuberculosis. My case is similar to the one reported by Schwartz.

REPORT OF CASE

J. B., male, age 42, single, and steamfitter by trade, was admitted to the Los Angeles General Hospital, March 7, 1924. Patient number 205-109. Eight months prior to his admission to the hospital he began to lose weight and to have excessive thirst and appetite. At that time a diagnosis of diabetes mellitus was made and he was treated with insulin—40 units daily. During those eight months he frequently complained of pain in the right shoulder and cough. He had lost thirty-five pounds during that time.

The patient gave a history of having had a fractured leg ten years previous to this illness. His habits were good. His family history was of no significance.

A physical examination was made March 8, 1924.

* From the medical service of the Los Angeles General Hospital, service of Dr. H. P. Hare.

It revealed a poorly developed white male who did not appear acutely ill. The eyes reacted normally; the teeth were poor; the tongue was coated; the tonsils were small and diseased. Routine examination of the chest was negative, with the exception of harsh breath sounds. There were no masses in the abdomen. The spleen and liver were not palpable, the enlargement not occurring until about three months after his admission, when the following condition was observed: The liver was four fingers below the costal margin and slightly tender. The spleen reached to the middle line and below the iliac crest. The notch was easily felt. No general adenopathy was found. At this time the diagnosis of myelogenous leukemia was made and substantiated by a number of blood counts.

X-ray of the chest was taken July 22, 1924; showed pulmonary detail rather heavy throughout the chest, especially the hilar region. Nothing distinctive of tuberculosis.

Blood Wassermann, negative.

Date	Condition of Patient
3/20/24	Severe hemorrhage due to extraction of all of patient's teeth. Lost approximately 300 cc. of blood. Fifteen cc. of horse serum injected.
6/21/24	Patient complained of pain in shoulders and knees.
8/7/24	Spleen very much enlarged.
10/30/24	Spleen decreases in size.
11/30/24	Patient feels chilly. Losing strength rapidly. Running high temperature.
12/20/24	Patient died.

Course and Treatment—Patient became sugar-free at various times under insulin treatment; patient received from fifteen to forty-five units and a diet of 2000 to 3000 calories daily. Three months after his admission he developed myelogenous leukemia, for which he was treated with benzol. The patient complained of pain in the shoulders and legs repeatedly, expectorated blood several times, but at no time were tuberculosis bacilli found in the sputum.

One month previous to death the patient began to have night sweats, chills, and fever, his temperature

LABORATORY FINDINGS

Date	Blood Count	Blood Chemistry	Urine Analysis
3/7/24	.....	Sugar, 333 Mg. per 100 cc.....	Color, clear
.....	.....	Total non-protein nitrogen, 42 Mg. per 100 cc. ....	.....
.....	.....	.....	Reaction, acid
.....	.....	.....	Trace of albumin
.....	.....	Preformed creatinin, 1.5 Mg. per 100 cc.	Sugar, positive
.....	.....	.....	Trace of acetone
.....	.....	Uric acid, 5 Mg. per 100 cc.	No pus cells
.....	.....	.....	No casts
5/14/24	.....	Sugar, 200 Mg. per 100 cc.....	.....
.....	.....	Total non-protein nitrogen, 28 Mg. per 100 cc. ....	.....
.....			
.....	.....	Preformed creatinin, 1.2 Mg. per 100 cc. ....	.....
.....	.....	Uric acid, 4 Mg. per 100 cc. ....	.....
6/24/24	R. B. C., 3,900,000.....	.....	.....
.....	W. B. C., 99,000.....	.....	.....
.....	Myelocytes predominate.....	.....	.....
7/22/24	R. B. C., 2,560,000.....	.....	.....
.....	W. B. C., 8500.....	.....	.....
.....	Myelocytes, 27 per cent.....	.....	.....
10/17/24	W. B. C., 144,000.....	.....	.....
11/19/24	Hb., 60 per cent.....	.....	.....
.....	R. B. C., 3,000,000.....	.....	.....
.....	W. B. C., 20,000.....	.....	.....

running as high as 104 degrees. He became weaker and weaker, losing strength very rapidly during the last three weeks of the illness. He died December 20, 1924.

Autopsy Report—Autopsy performed by Dr. Lawrence Parsons. Findings: Body of apparently middle-aged white male, fairly well developed. Rigor moderate. Greenish tinge to skin over abdomen. Sclera clear. Pupils equal and regular, 4 mm. Subcutaneous abdominal and thoracic fat very small in amount. Thoracic and abdominal muscles very pale.

Abdominal cavity: Contains about one liter of clear straw fluid. Appendix apparently unaltered. Small intestine slightly distended; serosa is uniformly smooth and gray. Urinary bladder slightly distended. Spleen is enormously enlarged, extending downward 10 cm. below the left costal margin. Left lower border of liver about 7 cm. below costal margin. Right diaphragm at lower border of fourth rib. Left at fifth rib.

Left pleural cavity. No adhesions, small amount of clear straw fluid.

Right pleural cavity, same as left.

NOTE—General post-mortem changes quite marked, obscuring many of the finer points of gross pathology.

Heart: Moderately enlarged. Epicardium slightly cloudy. Right atrial cavity distended with soft chicken-fat clot. Tricuspid valve apparently unaltered. Myocardium of right ventricle soft and flabby, normal thickness and very pale in appearance. Mitral valve apparently unaltered. Myocardium of left ventricle, average thickness, 12 mm.; is very pale and flabby. Aortic valve leaflets are thin, free, and pliable. Aortic intima is uniformly smooth and light yellow. Coronary artery intima pale gray and smooth. Weight of heart, 480 grams.

Left lung: Is voluminous, weighing 1320 grams. Pleural surfaces are smooth and glistening. Lobes are slightly crepitant with a rather rubbery feel. Bronchial mucosa slightly reddened. Lymph nodes at hilus slightly enlarged and dark pigmented. Cut surface of upper lobe is slightly moist, a grayish pink, finely granular, and is diffusely and closely studded with discrete, pin-head size, grayish, semitranslucent, nodules. The lower lobe presents exactly similar picture.

Right lung: Showed changes almost identical with those of the left lung.

Spleen: Weighs 1590 grams; measures 20 by 15 by 5 centimeters. The margins are all quite rounded. The surface is fairly smooth and of a pale reddish brown color. Capsule shows very little alteration. The organ is slightly softened, but of about the usual consistency of spleen. The cut edge everts slightly. Cut surface shows a great swelling of splenic tissue, overriding all the trabeculae and appears a homogeneous, almost glistening light reddish brown color.

Liver: Is markedly enlarged, weighing 3360 grams. The capsule is thin and translucent. Liver tissue shining through appears a faintly mottled brown and light yellow color. Organ is moderately softened. The cut surface is very pale, slightly yellowish brown, and the lobular markings are indefinite, giving the appearance of a fatty metamorphosis.

Kidneys: Are normal size and shape, symmetrical, considerably softened. Capsule strips easily, leaving a smooth, pale reddish gray surface. The cut surface is very pale, slightly resembling cloudy swelling, but with a pinker color, being slightly grayish pink. No gross changes aside from the softening and the paleness observed.

Urinary bladder: Is slightly distended with turbid

straw urine. Walls and mucosa are uniformly thin and show no gross alteration.

Prostate: Is apparently not enlarged.

Anatomical Summary—(1) Marked enlargement of spleen and liver. (2) Marked anemia. (3) Miliary tuberculosis of both lungs.

Probable Cause of Death—Chronic myelogenous leukemia.

Contributory Cause—Acute miliary tuberculosis of lungs.

(Unfortunately, by some error the findings of the pancreas do not appear in the record.)

COMMENT

Each report of the three cases of diabetes mellitus with myelogenous leukemia notes the fact that the diabetes mellitus preceded the myelogenous leukemia. In my case the leukemia did not appear until more than three months after the patient was admitted to the hospital. In Schwartz's case this matter is uncertain. It is also interesting to note that of the five cases of diabetes mellitus with myelogenous leukemia reported, two were complicated by miliary tuberculosis.

1048 Temple Street.

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Home Care of the Sick—The *New York Times* of June 1 discusses the remarks of Dr. W. C. Alvarez of the Mayo Clinic at the American Medical Association on the subjects of home diet and home nursing. It says:

"Doctor Alvarez would seem at first sight to be developing a bad case of fundamentalism when he urges the superior advantages, in a good many cases, of that old-fashioned institution, the home, against the modern scientific sanatorium. For those who can afford a first-rate sanatorium he has no suggestions. For the great many who cannot, he believes that the cure will go much better 'in the home of a devoted relative.' This is badly, sadly mid-Victorian. Are there such things as quiet homes to be found in the jazz age? Is the 'devoted relative' not utterly extinct in an age of self-expression?

"The speaker evidently believes that the species survives. He assumes that there are still mothers and wives who are willing to take trouble in a sick-room. He further assumes that affection is not necessarily incompatible with intelligence, or, at any rate, that affection plus moderate skill will balance the trained ministrations of nurses. As between a good hospital nurse who will wake an insomnia patient at 7 in the morning in order to make ready for the doctor's inspection and a maiden aunt who will let you sleep till nine, Doctor Alvarez prefers the maiden aunt."

Family physicians will say "Amen" to all this.—*New York State J. Med.*

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

DIPHTHERIA

Clifford Sweet, Oakland—We are possessed of the means for completely mastering diphtheria:

1. The causative organism is known.
2. Antitoxin is a specific remedy if given early and in sufficient dosage.
3. Passive immunity can be readily produced by antitoxin.
4. Active immunity of long duration is conferred by toxin-antitoxin.
5. The presence or absence of the immune state can be determined at any time by the Schick or Kellogg test.

In spite of the excellence and completeness of these weapons, diphtheria continues to be the third cause of death in the United States for children under six years of age, and the mortality in recognized cases is still 10 per cent.

Consideration of these facts makes our duty as physicians plain. We must educate parents to call us early in the course of illness. The mortality of diphtheria adequately treated by antitoxin is only two-tenths of 1 per cent during the first day, but rises to 10 per cent if treatment is delayed until the third day. We must urge that all children be given toxin-antitoxin early in childhood. Toxin-antitoxin produces a lasting active immunity in 97 per cent of the children to whom it is given and rarely, if ever, causes even passing discomfort. We must examine each child's throat thoroughly at each and every visit and take cultures when even the slightest evidence of inflammation is present. We must realize that the evidence furnished by cultures is only additional or supplementary and that decision must rest upon the clinical condition entirely. If diphtheria appears to be present we must give a full dose of antitoxin at once, report the case to the health department as suspicious, and then calmly await the report on the culture. An exudate on the tonsils sufficiently dense to form a continuous membrane is usually diphtheric, and if the membrane has spread ever so slightly beyond the border of the tonsil or is upon the posterior pharyngeal wall, one may safely say it is always caused by diphtheria. Likewise, if membrane of any sort is present, accompanied by swollen cervical glands or if the tissues of the throat are edematous (membrane present or not), one cannot safely do otherwise than give antitoxin at once. Then, too, the laryngeal form must never be forgotten with its prevalence in children under two years of age, its progressive loss of voice, "its voiceless cough," and its all too frequent fatal termination

unless early and vigorous treatment saves the child.

Antitoxin, beside being given early should be given in a single large dose by the intramuscular, the intraperitoneal or the intravenous route—never subcutaneously, except when the object is to produce passive immunity after exposure and slow absorption is desired. The time of highest concentration of antitoxin in the blood stream after administration is as follows:

Subcutaneous	72 to 96 hours
Intramuscular	24 to 48 hours
Intraperitoneal	12
Intravenous	at once

The time required to absorb half or more of the dose given is:

Subcutaneous	24 hours
Intramuscular	12 hours
Intraperitoneal	6 hours

When time is so important the disadvantage of the subcutaneous method is apparent.

No child with clinical diphtheria should have less than 10,000 units of antitoxin, and if doubts exist as to this amount being adequate doses up to forty or fifty thousand units are indicated. There is but one danger connected with the administration of diphtheria antitoxin and that is, a state of hypersensitiveness to horse serum. While this is a real danger, it must not be exaggerated and can be guarded against by injecting 1/100 cc. of antitoxin intracutaneously or, better still, applying it to a skin scratch according to the method now generally used in asthma and hay fever. If the patient is sensitive an urticarial wheal with pseudopodia will appear within twenty minutes. If this reaction to horse serum does not appear the antitoxin may be given with safety. If the patient is evidently hypersensitive the following schedule must be carried out. Give adrenalin and atropin by hypodermic to aid in controlling reaction.

- (1) 1/1000 cc. subcutaneously.
- (2) 1/100 cc. subcutaneously after 20 to 30 minutes, with an additional 1/100 cc. at intervals of 20 to 30 minutes until 1/10 cc. has been given intramuscularly.
- (3) 1 cc. intramuscularly after 30 to 60 minutes.
- (4) 1/100 cc. intravenously after one hour.
- (5) 1/10 cc. intravenously after one hour.
- (6) 1 cc. intravenously after one hour.
- (7) The full indicated dose.

All children should be immunized against diphtheria.

All suspicious cases should be given a single large dose of antitoxin at the earliest possible time.

A. J. Scott, Los Angeles—All children from 6 months to 6 years old should be given the prophylactic toxin-antitoxin. All children from 6 years to 12 years should be tested with the Schick test to determine their susceptibility to diphtheria. This technique would soon eradicate diphtheria.

The earlier treatment is instituted in acute cases, the lower the mortality rate.

Give 20,000 units of fresh serum; that is, serum dated as far in advance of the date of expiration as possible, thus avoiding low potency serums. The actual bulk of 20,000 units is not much more than 10,000 units and the excess units will do no harm, even at 6 months.

For quick results and least soreness, inject the peritoneal cavity. Apply tincture of iodine to the navel and over a three-inch space laterally and below, wiping off the excess with alcohol. Put clean towels wrung out of bichlorid or lysol solution on the upper abdomen and below the pubes. Have assistants hold the child's hands firmly above its head, and the knees down.

Use serum at temperature not higher than body temperature to avoid coagulation. Having seen that the child's bladder is emptied, insert the needle through the skin, then run between the skin and the muscles for half an inch or little more, then thrust directly into the cavity. This will not injure any intestine, as has been proven experimentally. The skin is then wiped free of all iodine and a cotton and collodion dressing applied.

A slight rise of temperature in about two hours and in the older child a complaint of soreness in the abdomen may occur. The temperature may go as high as 104 or more, but for only a few hours. The soreness in the abdomen will disappear in thirty-six to forty-eight hours. Usually there is no interference with bowel action, rarely any vomiting, and the amount of discomfort is slight compared to that following the barbarous method of injecting into the tissues of the back.

If the intraperitoneal route is inadvisable the most satisfactory route is intramuscular at the junction of the upper third with the middle third of the thigh on its external aspect. The site has this advantage; the tissues are all muscle; the patient can lie on back, front and opposite side; the circulation is free, and the serum is rapidly absorbed. It takes about twelve hours to get the system saturated with the serum by this route, while by the intraperitoneal route it is claimed that the full effects of the serum are reached in two hours. The intravenous route has no advantage over the intraperitoneal, and it is not recommended for ordinary use in the home except under extraordinary circumstances.

The dosage used, 20,000 units, rarely has to be repeated. If, however, the case is very toxic, and response does not seem to take place, repeat the dose once and in the same manner.

Twenty thousand units is used for all types of the disease. The laryngeal type has no more systemic reaction than the others. There is only an added mechanical obstruction to relieve which intubation is at times necessary. There should be no need for tracheotomy. The case that is not seen

until it needs a tracheotomy is in such a desperate state that it may die later, as many do, of secondary pneumonia. Dr. Chevalier Jackson says this may be by a collapse of the lung from plugging a bronchus with mucus or membrane. Tracheotomy should only be done as a last resort.

Intubation is clean and not difficult if the anatomy of the throat is remembered and a tube large enough to stay in is used. The thread should remain attached so that extubation may be easy. This thread may be fastened with adhesive to the cheek in the case of the infant, or in the older child it may be brought out through the nose and fastened so that the child cannot bite it in two. The tube is left *in situ* for two or three days, then removed and reinserted if the child again chokes up. Small doses of atropin or even codein are used to advantage, especially if there is much secretion or cough.

Hot steam inhalations of compound tincture of benzoin with occasionally a dram of creosote and two drams of oil of eucalyptus added to the two-ounce mixture, and a dram of this added to the hot water are valuable aids. The steam is used for twenty to thirty minutes every two or three hours according to the condition of the breathing.

Local treatments are usually unnecessary. When the patient is very ill the struggle to administer local treatment may, by damaging the heart muscle, offset all the good done. Usually if the dosage of the serum has been sufficient no local treatments are required.

In conclusion :

1. The value of prophylaxis by the administration of toxin-antitoxin has been proven.
2. In all patients with suspicious throats with croupy cough that do not respond within thirty-six hours to ordinary treatment, or with a bloody excoriating unilateral nasal discharge present, should be given antitoxin and cultures taken. The parents should be assured that even though the cultures are negative the serum will do no harm, whereas if the cultures should be positive the danger attendant in delay has been eliminated and the child given the benefit of early treatment before the damage is done.
3. In the case of carriers a virulence test should be done and if tonsils are diseased they should be removed.
4. Early administration of antitoxin; doses given intraperitoneally in dosage sufficiently large to avoid repetition.

* * *

George E. Ebright, San Francisco—Up to the period of the development of immunization against diphtheria by means of the vaccination of susceptible and non-susceptible children with toxin-antitoxin and the segregation of susceptible and non-susceptible individuals by means of the Schick test, the most important means of combating the occurrence of diphtheria was the recognition and isolation of carriers. While, no doubt, efforts in that direction were attended with a considerable degree of success the universal use of toxin-antitoxin immunization promises to be much more effective than the efforts to control contacts

and carriers in the past have been. For that reason health authorities are at the present time devoting especial attention to popularizing immunization. The picture to be visualized may be sketched in outline by reviewing the history of smallpox. In those communities in which compulsory vaccination against smallpox is universally enforced smallpox cases are curiosities.

When toxin-antitoxin immunization against diphtheria shall have become a universal practice cases of diphtheria with resultant contacts and carriers will also become rare curiosities and cease to be the problem that they now are. It is difficult to estimate when that time will arrive. The state of New York is making an ambitious and determined drive to eliminate diphtheria by the year 1930. Testing and immunization of school children was begun in Auburn in 1922. Fifty-eight per cent of school children were tested and the positive reactors were given toxin-antitoxin. Among the remaining 42 per cent eighty cases of diphtheria and thirteen deaths occurred during the year. In 1923 the percentage of immune children had risen to 73 per cent. In 1924 to 85 per cent. During the four years previous to the commencement of the immunizing work there had been a yearly average of 104 cases of diphtheria and fourteen deaths. This has been reduced to one death in a non-immunized child in fifteen months. It does not require a very profound prophetic imagination to visualize the promise for the future which these results hold forth.

Diphtheria carriers should be quarantined and held in isolation for the same reason that cases of smallpox should be. It is logical to make cultures of all immediate contacts of diphtheria cases and it is advisable that the virulence test be made on all carriers, particularly on those recovered in culturing school or other contact groups. This has markedly reduced the number held in isolation.

In the earlier field work the California state representative spent much time culturing school children. Prior to 1923 all children carrying morphologically diphtheria organisms were held in isolation and large numbers of children were detained in isolation. In the later years virulence tests have been run on all cultures morphologically positive and only those showing virulent organisms have been held as carriers.

The writer is indebted to Miss Stevens, assistant epidemiologist of the California State Board of Public Health for the following epidemiological examples:

"Vallejo—Through September and October, 1919, about forty cases of diphtheria were reported and an investigation was requested. The disease was widespread, so all of the grades were cultured. In all, 2110 children were cultured, and of this number 285 were found positive. Virulence tests were not made. These 285 were isolated, a nurse was employed to follow up all cases and carriers. Our morbidity records show that during the last three months of that year eighty-three cases were reported, and during the first six months of 1920, forty-seven cases. The detection

of the school carriers in that instance did not check the epidemic.

"Scotia—In 1920 the County Health Officer requested assistance in controlling diphtheria which had existed in Scotia through three school years. The entire school was cultured and of the 224 cultures, 102 were positive. A public health nurse remained to follow up and supervise all cases and carriers. There were no further cases for several years.

"Ross—In May, 1921, about eight cases of diphtheria occurred among the children of the Ross school and assistance was requested. All of the children were cultured and 39 of the 171 were found to be positive. Virulence tests were not made. Two other cases developed in August, but there were no cases after that. There was a splendid cooperation throughout the community, and a nurse was detailed to the follow up of the group.

"San Mateo—Fourteen cases had occurred in two grades of one school within two weeks and assistance was requested in October, 1922. Sixty-five cultures were taken—all of the children in the two grades. Fourteen were morphologically positive. Virulence tests were run, and of the fourteen only five were determined to be virulent. The five were isolated. Three cases developed during the week culturing was done. There were no other cases until December, when five cases were reported. However, during the year of 1923 thirty-two cases were reported.

"Delhi—In September 1923, the health officer requested assistance in culturing the school. Diphtheria had been epidemic for a period of eight months, and the cases had been released without the prescribed two negative cultures. One hundred and forty-five children were cultured of which fifty-one were morphologically positive. Virulence tests were run on all positives, and only three proved virulent. In November of that year there was another epidemic of fifteen cases. A large percentage of the children had been given toxin-antitoxin in August of that year, and after the November flare-up there were no further cases."

It will be seen from the above that bacteriological examination of carriers must be considered incomplete and unsatisfactory unless virulence tests on all the positives are made. With the machinery now available to health officers such tests are facile possibilities.

Summary—The ultimate aim in the eradication of diphtheria must be universal immunization of all susceptible children. Where it is feasible, susceptible and non-susceptible children may be segregated by means of a Schick test; where that is not feasible all children should be immunized. Until such a time as universal immunization has been reached, bacteriological examination of contacts should be made and virulence tests run on all carriers; and those showing virulent cultures should be isolated.

J. W. Robinson, Los Angeles—Prevention is better than cure, and the department with which I am connected immunize many thousand every year. Toxin-antitoxin is very satisfactory and safe. A few require a second series of injections.

In a case of diphtheria early diagnosis is of the utmost importance. In studying our records, one is impressed by the delay that occurred in every fatal case. This delay, while usually due to failure of the parents to call a physician, or to treatment by a non-medical practitioner, is only too often to be charged against physicians.

Young children frequently do not complain of sore throat. Swelling of lymphatic glands is usually slight or absent.

Fever is not so high as in many other diseases.

Diphtheria bacilli are frequently not found on the first culture. When the false membrane is forming, 12 per cent of first cultures will be negative, while in laryngeal and nasal types the percentages are quite large. So do not depend on a culture report before giving antitoxin. Likewise a positive culture does not always make a clinical diagnosis, as carriers often have sore throat due to other infections.

The following symptoms are nearly always sufficient to warrant the use of antitoxin:

1. Membrane in the throat.
2. Bleeding from the nose.
3. Croup which is as pronounced in daytime as at night, or one which is not relieved by an emetic.
4. A rapid and weak pulse.

All the antitoxin which is necessary should be given at one time. Forty thousand units should be the minimum in most cases, but in the few seen early, less will be sufficient. Adequate dosage used early will save an intubation and a damaged myocardium. The intramuscular route will suffice in cases seen fairly early. The best location is the outer aspect of the thigh, for the following condensed reasons:

1. The patient can lie on the back and other side.
2. Plenty of tissue even in babies.
3. Relative freedom from nerves.
4. No large blood vessels.
5. Adequate lymphatic supply insuring good absorption.

The patient should be kept in bed and quiet for two weeks or longer. Many have recovered from the initial toxemia to succumb to a strain thrown on a damaged myocardium.

I am *not* in favor of using antitoxin for passive immunity.

The effects are too short of duration. I have seen many cases of diphtheria which had had a prophylactic dose a few weeks previously.

We have had practically no deaths from secondary cases even in families where the first case was treated by others than a physician. All are on guard and at the first symptoms a physician is called and has the opportunity of early treatment.

But where a prophylactic dose of antitoxin had been used the family have been frequently misled

into believing that a permanent immunity had been established, and later when diphtheria had occurred were not suspicious until much valuable time had elapsed.

And then there is the danger, slight it is true, of unnecessarily sensitizing in case horse serum has to be used at a later date.

New Hospital for Crippled Children, Minneapolis—It is expected that construction will start this fall on the new William Henry Eustis Hospital for Crippled Children, which is to be built on the campus of the University of Minnesota. The funds for the new hospital, amounting to nearly \$600,000 have been provided entirely by Mr. Eustis, a former mayor of Minneapolis, who has established a trust fund for the maintenance of the hospital. The out-patient department will be financed by state funds already appropriated for the purpose.—N. S. Department of Labor.

Full-Time Teachers at Duke Medical—At the annual meeting of the North Carolina State Medical Society, Dr. Wilburt C. Davison, Baltimore, outlined plans for the proposed Duke University School of Medicine at Durham. Doctor Davison was recently appointed dean of the new school of medicine. It is planned, he said, to limit the classes to fifty, and arrange the curriculum so that, with proper preparatory education, the course leading to a degree in medicine should be completed in three years. The teaching and hospital staff will be full-time instructors, amply compensated for their services. Construction will begin soon on a 350-bed hospital, and the school of medicine is expected to open in 1929. A number of physicians are now under observation by the trustees for positions on the faculty.—*Boston M. and S. J.*

Misleading Advertising—Leading physicians throughout the country resent the implication that the medical profession has endorsed the preferential use of a certain brand of cigarettes as a cure or alleviative of throat irritation and for voice protection. In letters to the *Medical Review of Reviews*, which undertook a survey of leading physicians throughout the country to expose misleading advertising, physicians express their resentment and urge the public to be on its guard against accepting endorsements by a small minority as the authentic opinion of the 140,000 physicians of this country. The physicians among whom the survey was conducted were asked two questions by the *Medical Review of Reviews*. The first was: "Do you not agree with us that it is impossible for one cigarette to have any advantage over all others in regard to throat ease or irritation?" to which the answer was almost unanimously "yes." The second was: "Is it not your observation that there is no scientific reason for preference for any given cigarette and that any preference is on a taste basis?" to which the answer was almost unanimously "yes."

Only Physicians may Use the Title "Doctor"—A judgment recently handed down in Ontario makes illegal the use of the word "doctor" by anyone who is not a registered physician or surgeon under the Ontario Medical Act. This is to prevent cultists and healers from attempting to do, after only a few months' study, that for which the regular practitioners spend several years of their life in preparation. Such will no longer be permitted to pose as doctors in Ontario and their prestige may suffer in the eyes of their former sympathizers who were always ready to rally to their support.

This judgment is a sad blow to quacks everywhere, and in Ontario the effect will probably be to drive them out of the province and into new fields. If this tendency to migrate persists, other provinces may follow the lead of Ontario and make it impossible for cultists to further exploit the honorable title of doctor.—*Federation Bulletin*.

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Telephone Douglas 62

Editors GEORGE H. KRESS
EMMA W. POPE
Associate Editor for Nevada . . . HORACE J. BROWN
Associate Editor for Utah J. U. GIESY

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EDITORIALS

HERZSTEIN BEQUEST

In the making of wills the inner soul of the man is often revealed. Volumes have been written on freak wills—on wills that carry a lifelong hatred or malice to the grave; on wills that impose such conditions as make questionable the sanity of the maker, and the legality of the instrument.

Just as some wills reflect the meaner human characteristics of envy, malice, hatred, egotism, and self-laudation, so do others go down to posterity a mirror of friendship, affection, kindness, advancement of learning and the arts, and of charity to fellow men.

The will of Dr. Morris Herzstein is a testament to the fine spirit that dwelt within the man. His years were filled with work for the sick and the needy—with encouragement of art and of science, with an intense interest in his profession and in his adopted country, and his will clearly testifies to each fine interest.

That Doctor Herzstein appreciated to the full the necessity for a thorough scientific training of every man interested in the health or the life of another, was evidenced by his gift of \$20,000 to the California Medical Association to be used in the "suppression of quackery in the practice of medicine."

That he also recognized the only proper means for such suppression, his various gifts to educational institutions and to research laboratories amply evidences. Only when all practitioners of medicine, of whatever so-called school or cult, are

equally equipped educationally, will quackery be a thing of the past.

The California Medical Association acknowledges with gratitude the gift and the trust reposed in it. Such faith is a stimulus to closer organization for higher standards of education and better service to humanity.

VIVISECTION; ANTIVIVISECTION: PHILOSOPHICAL THINKING—AS RECENTLY DISCUSSED BY SOME LAY PUBLICISTS

Among the feature writers of the daily lay press, the names of H. G. Wells, George Bernard Shaw and H. L. Mencken scintillate as bright and shining lights. By chance, our eyes caught recent articles by each in three different papers having a bearing on certain phases of medicine and fitting in one with the other in sufficient degree to lead to the following comments.

* * *

Experimentation done in humanitarian wise on lower animals, in the effort to secure knowledge of biologic facts that could be put to effective use in the prevention of diseases among humans so that human health and life might be the better conserved, is a procedure to which medical men almost everywhere subscribe. We acknowledge this desire to acquire more exact knowledge, not only for knowledge's sake, but especially because it permits us again and again to be of more efficient service to our fellow humans who seek our aid. Also, because of our intimate knowledge of the actual facts, we deny the imputations and statements of well-meaning or other individuals who have persuaded themselves, for reasons of which they may or may not be conscious, that medical men in carrying out such experiments on animals do so with callousness to animal suffering and with purposes not scientific or altruistic.

* * *

In a recent Sunday newspaper appeared a feature article by H. G. Wells, famous British writer, captioned "Vivisection Foes Called Champions of Fantasy." To quote a few paragraphs:

" . . . What is vivisection? It is a clumsy and misleading name for experimentation upon animals for the sake of the knowledge to be gained thereby. It is clumsy and misleading because it means literally cutting up alive, and trails with it to most uninstructed minds a suggestion of highly sensitive creatures bound and helpless being slowly anatomized to death. This is an idea naturally repulsive to gentle and kindly spirits, and it puts an imputation of extreme cruelty upon vivisection which warps the discussion from the outset. . . .

" . . . But the larger bulk of experiments upon animals for scientific purposes involves no cutting about and very little pain. . . . There may be the prick of an injection and a subsequent illness. Where there is actual cutting it is nearly always performed under anesthetics and in a considerable proportion of such cases there is no need for the

animal to recover consciousness and it does not recover consciousness. . . .

" . . . Still a residue of cases remains in which real suffering is inflicted. Far more pain, terror and distress are inflicted on the first day of pheasant-shooting every year, for no purpose at all except the satisfaction of the guns, upon the wounded and mutilated birds which escape, than is inflicted by all the scientific investigators in the world, vivisectioning for a year. . . .

" . . . The antivivisectionist wants legislation to prevent all experiment upon living things for the sake of knowledge. Failing that, he wants to prevent experiment upon dogs in particular, even when the experiment involves no pain whatever to the subject. But you will find that the typical antivivisectionist is incapable of believing that an experiment can be painless. His imagination is too vivid for any assurances to the contrary. . . .

" . . . The hatred is not against pain as such; it is against pain inflicted for knowledge. The medical profession is massively in support of vivisection, and its testimony is that the knowledge derived from vivisection has made possible the successful treatment of many cases of human suffering. So far as we can measure one pain against another or the pain of this creature against the pain of that, vivisection has diminished the pain of the world very considerably. But the antivivisectionists will hear nothing of that. They will hear nothing of that because it is not material to their conception of the case. . . ."

* * *

The excerpts from H. G. Wells' article are so much in accord with the truth, as thousands of medical men know the truth from their own actual experience, that they are willing to subscribe to them as a plain and honest statement of actual fact.

* * *

Witness now George Bernard Shaw, who two months later in another Sunday newspaper comes back in a reply article under the heading, "Shaw Flays Wells on Vivisection; Fabian says Pain Lovers Hide Cruelty in Name of Science; Experimenters' Plea that Beast is Man's Inferior Denied."

Here are some quotations:

" . . . We have got it at last from H. G. Wells, the author. The vivisection experiments because he wants to know. He is driven by a will for abstract lucidity. . . .

" . . . From that time forth medical students were taught to advocate and defend vivisection as an essential tenet of scientific faith. . . .

" . . . As a matter of fact, we do not tolerate vivisection on these absurd grounds; we cling to it dishonorably because we are repeatedly assured that it has led to the controversy of cures for our diseases, and we are prepared to snatch at any dirty recipe for immortality rather than face death like ladies and gentlemen. . . .

" . . . When one thinks of the Rockefeller funds, the cancer research funds and the rest of the money that has gone down the vivisectionists' sinks during the past quarter century and compare their

worse than negative results with the amazing series of discoveries made during that period by physicians doing sheer brain work within the strictest limits of honor, it is difficult to resist the conclusion (not that any normal person wants to resist it) that only imbeciles can be induced to practice vivisection and glory in it. . . ."

* * *

So there you have it. George Bernard Shaw has worked it all out in his own mind and with his facile pen makes a picture pleasing to himself and his antivivisection friends who philosophize in similar fashion.

If their fantasies—far removed from actual facts, as thousands of God-fearing medical men throughout the civilized world can testify—reached only their own group of imaginative and emotional and sentimental persons, the world would need little concern itself with the vapors. Such statements are, however, read by thousands of the laity, who thus become prejudiced against scientific medicine, take up cultist fads, and often pay for their gullibility at a health or even life price.

* * *

After a perusal of Shaw's promulgations, it was refreshing to run across in a third newspaper a column conducted by H. L. Mencken. The title of his article was "The Revival of Philosophy." Mencken's opinions seem to apply so pertinently to the psychological state one would imagine Shaw to have been in when he wrote his article, that the following excerpts are here given:

" . . . The ancient nonsense known as philosophy seems to be enjoying a considerable revival in the world, and especially in the United States. . . .

" . . . The essence of philosophy is the theory that it is a waste of time to hunt facts—that all the problems which harass *homo sapiens* may be solved, so to speak, with the naked mind. A philosopher is one who, by simply sitting down in his studio and yielding himself to thought, is capable of concocting an answer to any conceivable question, including even the question as to how, why, and with what he thinks. . . .

" . . . The scientists hold that going into a room and sitting down to think is, in nine cases out of ten, a bad way to get at the truth. They believe that the conclusions reached by the process tend to be ingenious rather than sound, and that in any event they are determined more by the philosopher's blood pressure, digestion, and theology than by the actual state of the facts. As an alternative, they propose going to the facts themselves and letting them tell their own story. This is the so-called scientific method, which is based upon experiment and observation rather than upon cogitation. True enough, it admits some cogitation, too, and so it is occasionally corrupted by purely philosophical errors, but on the whole it is manifestly safer and more accurate than the method of the philosophers. . . ."

* * *

In the three articles above quoted, it is noted: one, that Wells presented a fair statement of the reasons for and the need of animal experimenta-

tion; that Shaw gave a typical sample of the logic indulged in by the antivivisectionist group; and, that Mencken explained how Shaw's kind of reasoning came into being, and what was its worth.

* * *

In the last fifty years, diseases which formerly caused a tremendous toll in human misery and deaths have been brought under subjugation. In the last one hundred years the average life space of humans in the western world has been marvelously increased. That increased number of years in which to live and to serve in the world, largely has come about through scientific research devoted to the study and elaboration of newly discovered and applied scientific facts in relation to the human body, and its functions.

What a sad reflection on the type of modern-day intelligence and culture, that so many lay fellows through philosophical contemplations associated with emotional and unstable mental functioning let their vision of these actual accomplishments of scientific medicine in recent years, in the conservation of human health, life and happiness become so warped, that they are unable to appreciate what that scientific progress has meant to the prosperity and happiness of the human beings and living things in this world in which we of today have our earthly existence.

AN OUTSTANDING COUNTY HEALTH DEPARTMENT

Recently a copy of the 1927-1928 budget of Los Angeles County, compiled by the county auditor, came into our possession. Los Angeles County, with its area of some four thousand square miles, is about two-thirds the size of Massachusetts, and the total assessable wealth of its estimated population of two million, two hundred thousand citizens, is estimated at three billion, three hundred and seventy-one millions of dollars. In the auditor's report of some two hundred large folio pages, there was a presentation of statistical detail dealing with public finances that was quite appalling.

The total appropriations for the cost of government in this county for the current fiscal year came to a grand total of practically thirty-four millions of dollars.

The health and sanitation appropriations totaled \$3,271,880.00, and the charities, hospitals and corrections mounted to \$12,098,177.00!

* * *

The Health Department of Los Angeles County was credited with an appropriation of \$1,053,028.00 for the fiscal year.

Endowment funds can rarely be invested in sound securities to net more than 5 per cent; and when so invested, give an annual interest return of fifty thousand dollars on an endowment of each one million dollars.

The Los Angeles County Health Department operates therefore, as if it were receiving the interest return on what would be an endowment of twenty-one millions of dollars! In that light,

the annual budget of the department certainly seems staggering.

* * *

Large as is the sum, it becomes more astounding when one realizes that ten years ago when Dr. J. L. Pomeroy, the present county health officer, assumed office, his total budget for the year was only seven thousand two hundred dollars, that sum paying the salaries of himself, a stenographer and one inspector. The entire equipment of his department was contained in a small room in the old court house.

In the intervening ten years, the annual appropriation for the County Health Department work has increased to the amazing figures previously given.

When the current year's appropriation of \$1,053,028.00 is divided by the \$7,200.00 appropriation of ten years ago, it is found that the budget today is one hundred and forty-six times as great as then.

Therefore, the increase of appropriation in this decade, when expressed on a percentage basis, shows that in the current year the department's appropriation is 14,600 per cent greater than ten years ago! This increase in actual sums and percentage probably cannot be duplicated in any other county or similar governmental unit in the United States or abroad.

* * *

The trend of preventive medicine in community life is most significantly shown in the astounding figures which have been presented. These figures speak volumes in showing how effective has been the propaganda in preventive medicine which the lay press years ago accepted upon the initiative of physicians, who stressed the need of cooperative community effort if water- and air-borne diseases, as typhoid and small-pox, and scourges such as tuberculosis, which were intimately connected with faults in our social fabric, and other diseases, were to be eliminated or held down to a minimum expression.

* * *

Without such an awakening of the public comprehension and conscience through this educational preventive work in which physicians were and still are the pioneers and leaders, it would have been quite out of the question for any board of supervisors or public officials to have appropriated such vast sums for public health work as are here quoted. And in equal measure, it would have been impossible for a lone county public health officer, as was practically the case in regard to Dr. J. L. Pomeroy of Los Angeles, to have induced successive boards of county supervisors to embark on more and more public health work, and be willing to expend greater and greater sums therefor.

* * *

The questions will naturally be very promptly put: "How is this tremendously large annual appropriation used? Is its use confined to strictly preventive public health work, or does it through state medicine and superpaternalistic methods

improperly trench over into the fields of curative or personal health medicine?"

To answer those questions and many others of analogous import, which very properly could and should be asked would require a detailed study of the Health Department referred to, and at this time and in this place that is not possible. However, such questions and such studies should be made by the organized medical profession, for the protection of the interests of both the public and its own members; and the results of such careful surveys should be placed on record for both the profession and lay citizens.

* * *

It may be stated that the auditor's report which is under discussion, shows a County Health Department personnel of 288 persons, the total salary appropriations amounting to \$172,078.00.

The activity divisions of the department include among others the following: administration; communicable diseases; vital statistics; quarantine; sanitation; milk; food; water; child hygiene; public nursing; school nursing; oral hygiene; fresh air schools; tuberculosis; immunization; laboratory; housing.

* * *

One of the interesting expressions of this department's work is its cooperation with some twenty-five of the smaller municipalities of the county, giving each of these cities public health supervision and cooperation, the estimated cost usually being divided equally between each city and the county. The reason being to give a better public health service for the same amount of money.

* * *

Another very interesting activity is the health centers, which are operated under the supervision of the County Health Department, in special buildings erected by the county, the medical and surgical work being under the control of an attending staff chosen from the physicians of each district. Here some new problems are being solved, but always with the thought in mind of full cooperation with the organized profession.

* * *

From what has been here presented, it is evident that many interesting phases of the public health work of Los Angeles County might properly be discussed. On some future occasion this may be possible.

EPHEDRIN—A RECENT ADDITION TO WESTERN MEDICINE, BUT CENTURIES OLD TO THE CHINESE

Chinese herbs and Chinese herb doctors are no novelties to Californians.

True, the enforcement of the state medical practice act has eliminated the "Chinese doctor" pretense, so today the dispensers of the herbs

must be content to hold themselves out as merchants selling herbs, much as clerks in a modern drug store sell patent medicines. Then again, Chinese herb concoctions often have been far from palatable, and for that reason are usually as unattractive to Western eyes as are the dried fish and what-not imported food products so often on display in the grocery or food depots of a Chinatown district.

With an alien tongue, medicaments unpleasant to eye and palate, and a therapeutic system based on a philosophy and empiricism not readily understood by the Western brain, it is little wonder that practically all Chinese drugs and methods have been dismissed with little more than shrugs of the shoulders by Western physicians.

* * *

Yet Chinese medicine goes back into a legendary period that antedates very considerably the earliest medical records of Westerns. Sheng Nung,¹ the Chinese father of medicine (B. C. 2737), is given credit for compiling the "Great Herbal." The Nei Ching or "Canon of Medicine" is supposed to have been written about B. C. 1000.

In the Tang dynasty, about A. D. 652, a book entitled "Thousand Gold Remedies" and consisting of sixty volumes appeared.

* * *

A citation of some modern Western discoveries, in contrast with the Chinese may be of passing interest:

The catheter was mentioned by Chinese physicians in the seventh century A. D., although Western physicians place its discovery to the credit of Nelaton in 1860.

Organotherapy was early recorded in China, for sheep thyroid for goiter was used by the Chinese in the sixth century, A. D.

Inoculation against smallpox was used in China as early as 1022, A. D.

Chinese state medical schools and examinations are of record in 1068, A. D.

The foregoing notes are given because only recently K. K. Chen, Ph. D.,² a native of China and a former student of the University of Wisconsin Medical School, called the attention of Western physicians to Ma Huang, an herb known in Chinese medicine for some five thousand years, and the active principle of which is the alkaloid ephedrin.

Chen, after working out the active principle, found that a Japanese, Nagai, in 1887 had already accomplished this, and that E. Merck, in Germany, also reported the process in 1888.

Ephedrin is much like adrenalin in its chemical structure and in its action on the human tissues, and was discovered before adrenalin had been worked out. Strange to say, however, its significance had escaped the observation of Western clinical observers until Chen's presentation of its physiological action in December, 1924.

Here was a Chinese drug Ma Huang, used and understood by the Chinese for hundreds of years, with an alkaloid possessing distinct advantages

¹ For an article on "China's Contribution to Medicine in the Past," see *Annals of Medical History*, Volume viii, No. 2.

² The Action and Clinical Use of Ephedrin, *Journal A. M. A.*, September 11, 1926.

over adrenalin for certain purposes. In the last two years it has come into very generous use, particularly among rhinologists, and among internists paying special attention to asthma.

Ephedrin has a pharmacologic action much like that of adrenalin, but its effects last longer. It is more stable, and acts well when given by the mouth. It has a low toxicity. It shows active effects on the circulation, on secretion and on smooth muscle. It seemingly has no habit-forming tendency; and only a few distressing effects such as occasional tremor, weakness and nervousness have been observed.

It is especially valuable in bronchial asthma and of good use in certain congestions of the nasal membrane such as hay fever. Although it raises the blood pressure, its real clinical value in hypotension has not yet been agreed upon.

* * *

The rediscovery of this drug known for centuries in the written records of the Chinese, and the recent reisolation of its alkaloid, ephedrin, which was originally isolated prior to adrenalin, and the tardiness in the recognition of its worth, shows how necessary it is to be on the alert for valuable agents and adjuncts in our therapy, even in this day when exploitation of new remedies is so general. We must acknowledge that a drug like ephedrin, antedating adrenalin and in many ways very similar in valuable action, seemed hardly to need the period from its original isolation in 1886 to its reisolation in 1924, to make Western medical men appreciate its worth. Chinese who appreciate how prone Westerners are to look upon the Chinese as one of the so-called backward peoples have seemingly in this instance, an opportunity to quietly smile in their sleeves at Western backwardness.

HONOR TO ALUMNI

Vanderbilt Hall, the new dormitory for the students of the Harvard Medical School was dedicated last month. The memory of former students whose names are known throughout the medical world is there perpetuated. The student room is named for Charles Best, co-discoverer of insulin with Banting; the dining hall for Bowditch; the living room for Mixer; and over forty of the students' suites for other illustrious alumni.

Thus the names will live. If to this could be added a memorial day when talks were given on the men so honored, perpetuation of the real personality would be effected. Surprising it is how few generations are necessary totally to erase the picture of one who was an inspiration to his own generation, beloved by his students, honored by his fellow practitioners, and the idol of his clientele.

If at every alumni meeting the life of a former colleague were read, the historical archives of the Association would shortly be complete. How much better such effort than the usual prophetic

and inane forecasting of the graduation class' future.

California has a Lane and a Barlow Library; she had a Toland Hall, but how few so honored compared with the many forgotten. Is it not time we followed the Harvard custom of immortalizing names?

The Best Method of Vaccination—The best method of vaccination is probably the "multiple pressure or prick" method. This consists of a shallow, tangential pricking of the cleansed, but not irritated, skin with a needle, through a drop of smallpox vaccine, covering an area not greater than one-eighth of an inch (3 millimeters) in diameter. This gives little chance of accidental infection and the eruption is typical. Acetone has been found satisfactory for cleansing the skin. It is somewhat more efficacious and rapidly drying than alcohol. The needle, which should be new, sharp, and sterile, is not thrust into the skin, but is held quite parallel or tangential to it, with the forefinger and middle finger of the right hand above the needle and the thumb below, the needle pointing to the operator's left. The needle should be crosswise of the arm so that the thumb of the operator is not impeded by hitting the skin. The side of the needle point is then pressed firmly and rapidly into the drop about thirty times within five seconds, the needle being lifted clear of the skin each time. This rapid to and fro motion of lifting the needle and pressing it against the skin should be quite perpendicular to the skin and needle, and not in the direction of the needle. In this way the elasticity of the skin will pull a fraction of an inch of the epidermis over the point of the needle at each pressure so that the vaccine is carried into the deeper epithelium (cuboidal prickle-cell layer), where multiplication takes place most easily. If the skin has not been unduly rubbed in cleansing, and if the motion is entirely perpendicular to the needle, no signs of bleeding will occur and all evidence of the punctures will fade out in less than six hours. Immediately after the punctures have been made the remaining vaccine is wiped off the skin with sterile gauze and the sleeve pulled down, the whole operation of puncturing and wiping taking less than ten seconds. With strong vaccine a single pressure not infrequently gives a "take." Only six pricks or punctures were formerly advocated. Comparative tests showed this to be inferior to the scratch method of percentage of "takes." By the use of thirty pricks this difficulty has been overcome, and the percentage of "takes" is as high as with any other safe method. For primary vaccinations, where the mildest possible "take" is desired, and where other attempts with highly potent vaccine will be made promptly if the first is unsuccessful, the number of "pricks" may be reduced to ten, or even to one.

The disadvantages of this method, which it shares with some other methods, are, first, that without demonstration and practice the technique of applying the proper pressure may not easily be acquired, and second, that without due care an area larger than one-eighth of an inch (3 millimeters) in diameter may be covered by the insertion. In regard to the first point, the difficulty is usually that the needle is not pressed in the right direction or that the pressure is not firm enough. Provided the needle is held quite tangential to the curve of the arm, and the direction of motion is quite perpendicular to the needle, it is difficult to make the rapid pressures too firmly. In regard to the second point, motion from the wrist with the arm held rigid is usually more accurate than whole-arm motion.

The advantages of this method are its mildness and painlessness, the fact that it is more rapid than any other effectual and safe method, the fact that no control site is necessary, since the evidence of trauma due to the operation has disappeared before the first observation for an early reaction is made, and the fact that the vaccine is wiped off immediately, so that the uselessness of a dressing is obvious to the person vaccinated.—*Ohio Health News*.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members.

Neurosurgery

Gliomas—Of the intracranial tumors gliomas represent between 40 and 50 per cent. Their frequency, infiltrating character and often rapid course have made them most feared. Frequently, however, cystic changes are found in which a small portion of solid glioma is associated with thick yellow highly albuminous fluid. These have been welcome findings, as clinical improvement is generally prompt, often striking, and long leases of life are frequent. Cerebellar tumors are relatively more frequent in children than in adults and in them cystic change is particularly common. In other gliomas the degree of malignancy as attested by rate of growth and infiltration of tissue varies during the life of the tumor. We have seen a large cyst completely filled and obliterated in six weeks by solid glioma. Certain other gliomas which show calcifications are relatively benign, run a course of years and retain fairly definite limitation of the growth. Removal of these may give freedom from symptoms and apparent cure for years before recurrence takes place.

Bailey of Cushing's Clinic using the methods of the Spanish school of neurohistologists—Cajal and del Rio-Hortega—has by means of their special staining reactions undertaken to arrange a classification of gliomas. He has submitted a classification of gliomas comprising twenty types on the basis of their histogenesis.

In "Tumors of the Glioma Group by Bailey and Cushing" the authors present their classification and give their observations of the clinical course of patients having these different cell types of tumors.

As elsewhere in the body the tumors which reproduce the more highly differentiated cells grow less actively and are relatively benign. Radical removal of these is well repaid.

Three of the classified groups, viz., the oligodendrogliomas and the protoplasmic and fibrillary astrocytomas comprise about 40 per cent of the gliomas. All of these are relatively benign and thus warrant radical removal.

Predictions of certain types of glioma under some conditions may be made with some degree of accuracy. In our own experience the midline cerebellar tumors springing from the region of the roof of the fourth ventricle and occurring in children often gave vomiting as a first and only symptom over a considerable period of time, even many months, before other localizing signs or general pressure signs appear. In the classification of these authors these prove to be the medullo blastomas which, from a limited observation, seem to

be more favorably influenced by x-ray than are many other types.

Familiarity of the surgeon with the gross and microscopic appearance of glioma types should serve in the future as a guide to the type of operative treatment required in this large group.

HOWARD C. NAFFZIGER.

San Francisco.

Tuberculosis

Mechanics of Respiration — Dr. Willia S. Lemon, Chief of the Department of Diseases of the Lungs at the Mayo Clinic, reported a very interesting "Experimental Study in the Mechanics of Respiration, Including the Diaphragm and Its Importance in Respiration." The work was done on dogs.

Exeresis of one phrenic nerve was performed. Radiographic examination following this showed that the diaphragm on that side was paralyzed, though it was not possible to demonstrate any changes by physical examination. The dogs' behavior and respiration were to all appearances normal. When exercised with normal dogs (running uphill), they breathed no more rapidly or laboriously at the top of the hill than the controls.

A similar operation was then done on the other side, resulting in paralysis of both domes of the diaphragm, and still the animals behaved and breathed normally while quiet, and after exercise exhibited no respiratory embarrassment or lack of endurance.

On other animals the lower intercostal nerves on one side were sectioned as close to the spine as possible. This resulted in paralysis of the corresponding intercostal muscles and the upper muscles of the abdomen, which became quite flaccid. These animals showed no change from the normal in their behavior or breathing either at rest or after exercising.

The lower intercostals on the other side were then sectioned in a similar manner without apparent ill effect.

Section of all the intercostal nerves on one side was also without any demonstrable effect on the dogs' respiration.

All the intercostal nerves on the other side were then treated similarly, and still no bad effects could be detected.

In addition to all the intercostal nerves, first one and then the other phrenic nerve was divided, and the animals continued to live and exercise with little or no impairment of the respiratory function. In cutting the intercostal nerves it was impossible to get the complete nerve, and the mus-

cular innervation supplied by the small portion of the nerve lying between the point of division and the spinal cord was sufficient to carry on respiration.

It was found, however, that when these dogs were subjected to a general anesthetic these muscles were inadequate to maintain sufficient respiration to keep the dogs alive.

Section of the spinal cord in the neck was tried, and it was found that cutting of the cord one vertebra below the lowest point which was fatal did not visibly affect the respiration of the animal. In this case, just as in the case already mentioned, the administration of a general anesthetic was followed by death.

These experiments are of special value in view of the recent popularization of the operation of phrenicotomy or, as Doctor Lemon prefers, "exeresis of the phrenic nerve," and appear to establish the operation as one in which the risk of unfavorable results (apart from the condition of the lungs presumably already diseased) is not great. Their publication will be awaited with great interest.

CHARLES C. BROWNING,
Los Angeles.

Neurosurgery

Tic Douloureux—Harvey Cushing once wrote that of five individuals who consulted him because of trigeminal neuralgia, four were sent by former patients, and one by a physician. Nor is his experience unusual, as the records of any neurosurgeon will show. Why should such a large proportion of patients afflicted with one of the most painful of diseases be referred by those who have been cured, and not by the doctor? A consideration of the natural history of tic douloureux shows that part, at least, of the blame can be placed on the peculiarities of the disease.

The first attack of pain is almost invariably located in the superior maxillary or the mandibular division of the nerve, and the patient naturally thinks that a diseased tooth is at fault. He has teeth extracted without relief. The physician who sees him at this stage should remember that pain in a peripheral branch of the fifth nerve, caused by disease of some organ of the head, is constant, does not stop at night, and is not made worse by external stimuli; while the pain of tic douloureux comes in flashes, is brought on by motion of the face, and is absent at night. If the physician advises extraction of more teeth or operations on nasal sinuses for tic douloureux, he loses that patient's confidence when the pain continues. Until the diagnosis is made, one method of treatment after another is tried by a series of advisers, medical or otherwise. Sooner or later, because of the intermittent character of the disease, the pain suddenly stops, and the pa-

tient believes that he is cured. After an interval of weeks or months a second attack begins, and the treatment which cured the first attack is without effect. Other therapies are tried, and again there is an interval of freedom. Before long the patient loses faith in all advisers, and he may refuse the proper treatment when the diagnosis is finally made. But when he meets a person who has been cured, and finds that his disease is exactly the same thing, he goes with confidence to the surgeon who treated that patient.

There are only two effective methods of treatment. Injection of alcohol into the involved division of the nerve gives relief for a period that averages from twelve to eighteen months. The affected area increases with succeeding attacks, the attacks last longer and the free intervals get shorter, it becomes increasingly difficult to inject the nerves because of formation of scar tissue, and eventually all patients come to operation. Division of the sensory root proximal to the Gasserian ganglion gives permanent relief from the pain. The dangers of this procedure are frequently put to the incapacitated sufferer on the basis of the high mortality of the early days of the operation. Many surgeons now have large series of cases with a mortality of less than 5 per cent. Considering the advanced age of most of these patients, such a mortality is low for an operation which assures freedom from unbearable pain.

E. B. TOWNE,
San Francisco.

Gastro-intestinal Disorders

Duodenal Regurgitation—The importance of duodenal regurgitation is now being grasped by clinicians, and as it is being more thoroughly understood it is providing important help in solving some of the so-called "functional disorders" of the stomach that have for years been so baffling.

Boas, Ewald, Pavlov, and other physiologists have taught that acids in the stomach were neutralized by a "special gastric secretion," thus diluting, neutralizing and diminishing its secretion. Boldereff, a pupil of Pavlov, has shown that this influence is confined entirely to dilution by a "thin mucus," and therefore a negligible factor. Boldereff¹ in a recently published article gives a series of animal experimentations which show conclusively that the acidity of the stomach is self-regulatory by means of regurgitation of the alkaline duodenal contents. Reading of the article is very much worth while by those interested in applied physiology of the gastro-intestinal tract.

The stomach is the favorite seat of symptoms that are often reflex from some distant abdominal point. This makes it "the spokesman" for many conditions. The clinician, and especially the gastroenterologist, is successful largely in proportion

to his success in ferreting out the origin of these reflexes.

One of the most common reflexes reaching the stomach is a spasm of the pylorus, and in the light of our present knowledge of the physiology of this sphincter it is easy to understand its upsetting influence. One gets a most illuminating vision of some of the old functional disorders such as high acid gastritis, by reviewing the literature on duodenal regurgitation, and the regulation of the gastric acidity.

Boldereff's article is a very stimulating one. It helps us to see the complexity of clinical medicine, and shows how futile are attempts to control many gastric symptoms by local treatment and drug medication, when such symptoms are in reality due to some distant reflex upsetting the control of acid and other gastric secretions by disturbing the regurgitation of the alkaline duodenal contents through a functional pylorospasm.

The removal of an appendix or a gall bladder, the correction of constipation or some irritating pelvic disorder although apparently very remote, may through a reflex arc fully relieve distressing gastric symptoms by re-establishing the duodenal regurgitation.

R. MANNING CLARKE,
Los Angeles.

Physical Therapy

The Trend of Modern Medicine—Not so many years ago, after Virchow had infused into it a new spirit of investigation by his cellular pathology, and medicine was establishing itself on a scientific basis, physicians were satisfied to make a diagnosis. Treatment, if any, was more or less empiric. A correct diagnosis and a prognosis based on the experience gained from countless post-mortem observations was the desired end of consulting work. In the Vienna school at the time of Skoda and Rokitansky, it is said that the ideal patient was he on whom Skoda could make the diagnosis and Rokitansky could do the autopsy to verify the observations and opinions previously set down on the clinical chart. Even the great Osler, whose textbook meant so much to English-speaking medical students, would devote pages to pathology and diagnosis, but would dismiss therapy in a short paragraph.

Then followed the brilliant years in medical history when the seeds sown by Pasteur and Lister began to bear fruit. Modern surgery had arrived, and instead of studying post-mortem pathology the surgeon demonstrated that living pathology of which Moynihan so delightfully enlightened us in his classic essays and addresses. Surgery began to accomplish things undreamed of from a therapeutic standpoint, while pharmacologic therapy was content to use those remedies which had been in vogue so many years and whose virtue was too often empiric. Concomitant with the rise of scientific medicine came amazing progress in the fundamental sciences of chemistry, physics, and biology. Pasteur's contribution to

bacteriology and Lister's to antisepsis were the early incentives for the search of so-called specific remedies on the part of chemist and pharmacologist.

For many years it has been apparent that there are individuals who are sick, but whose ailments yield very slowly or not at all to surgery or medicine. Orthopedists and neurologists who see many patients of this type have long used physical methods of therapy, such as massage, graduated exercise, or as some form of the various electric modalities. It remained for the recent war with its reconstruction of human wreckage to focus our attention on the value of these aids. Today, if we were to accept the statements that come to our desks from the jobber and manufacturer, no physician's office would be complete without one or more of the physical therapeutic appliances. These include machines built to give radiation of various types—x-ray, ultra-violet ray, or thermic ray—as well as high frequency machines that are used in diathermy. To this may be added radium, which any physician may procure in the form of radon and which he may apply by following written instructions, though he himself has had no experience or training in its use.

We owe much to the commercial interests in producing appliances which are reliable and easy to use. In their zeal for increased financial returns, these various products are placed in the hands of men who have neither the training nor the time to devote to this line of treatment. Commercial production and salesmanship have outstripped scientific investigation to such a degree that physical therapy is being heralded as the long-looked-for millenium. It is true that much of the therapy which we have found useful today is empirical in nature. The wave of enthusiasm for therapeutic endeavor along physical lines will be followed in a short time by a wave of discontent and the pendulum will swing to the other extreme unless the limitations are recognized. Anything worth while will stand, but that which does not rest on a firm scientific basis will be discarded.

Physical therapy, including therein x-ray, radium, and phototherapy, is a large field. It is as truly a specialty as surgery or internal medicine. Its opportunity for doing good is limitless, while its latent and invisible powers are great enough to be fraught with excessive danger to patient and practitioner alike, if wrongly applied. It requires years of careful clinical training to become an adept in deciding where one should be applied and where the other. Despite twenty-five years of radiation therapy by x-ray and radium we are far from the desired goal of perfection. No amount of research along purely physical lines will solve problems applicable to biology and physiology. Biological research and clinical experience must do this for us.

The American Medical Association has done organized medicine a great honor in creating a council on physical therapy, thereby giving to physical methods of therapy that recognition to which it is justly entitled. It has been a great boon to

1. Bulletin of the Battle Creek Sanitarium and Hospital Clinic, May, 1927.

the practitioner, showing him the conditions which experts have found will yield to physical methods.

The field has just been scratched. We know considerable about the massive destructive effects of x-ray and radium since the cancer problem has called our attention to the successful application in that disease. The effects of these agents in milder dosage where the immediate results are apparently stimulating rather than destructive is also interesting. This is especially true in the so-called "hypo" phases of endocrine disturbances. In other words these potent agencies are opening the fields that the endocrinologist has been attempting to rejuvenate by substitution therapy. Likewise in the various inflammatory conditions physiotherapy has been used long enough to show us that it competes with surgery in some cases. It will not replace surgery in all cases, but it will be a useful ally in restoring health to cells and tissues which have long been crippled by infection and exudation. The various skin conditions—acne, carbuncle, furuncle, tuberculosis of the glands, joints and peritoneum—are all amenable to physiotherapy. What the future has in store for us is still unknown, but what is known should be mastered so that physical methods will take their rightful place in the evolution of scientific therapy.

ORVILLE N. MELAND,
Los Angeles.

Tropical Medicine

Clonorchis Infection—For two reasons the physicians in California are concerned with the disease called clonorchiasis. First, it is a fairly common parasite among the Chinese and Japanese residents of California. Second, immigrants subject to it are excluded under the immigration regulation forbidding admission to persons having "dangerous contagious disease." "Contagious" is interpreted to mean "communicable." In the matter of treatment, therefore, as well as in the question as to the rightful exclusion of this disease, the physicians in California have a direct interest.

The clonorchis, or liver fluke, so far as is known, only invades man in one way. The encysted larvae are ingested with uncooked fish, are released in the duodenum and make their way to the bile capillaries where the adult worms develop. If there is bile obstruction the pancreas may be invaded. These worms are leaflike or trematode worms, and damage resulting from their presence seems to be proportional to their number. E. C. Faust at Peking Union Medical College has recently made solid contributions to the knowledge of their life history. His work corroborates and extends the results of several excellent Japanese parasitologists, *e. g.*, Nagano and Katsurada.

Briefly, Faust finds that the ova of clonorchis, leaving the human host in the feces, are swallowed by certain species of fresh-water snails, provided the water is of sufficient warmth. In the snail, development takes place from a larva into a free-swimming cercaria which is very delicate, but

which under proper conditions of warmth is swallowed by certain species of fish and encysts in their flesh. The common oriental use of dried, raw and insufficiently cooked fish transfers the infection to man. No other means of human infestation is known.

The longevity of the adult worms in man is calculated at from five to fifteen years at the maximum. It is to be noted, however, that Dunlop Moore has reported two cases where the infection persisted twenty and twenty-five years respectively after leaving China. In any case it is a self-limited disease, barring reinfection.

Inouye, a Japanese clinician, has classified the disease as follows: (a) mild cases with no evident symptoms; (b) secondary stage, with diarrhea, edema and hepatic hypertrophy; and (c) severe type aggravated by involvement of hepatic portal system. In Japanese patients he found jaundice rare, but noted 50 per cent with enlarged, smooth livers; 33 per cent with dull pressure pain over liver; 12 per cent with enlarged spleen; 15 to 40 per cent with ascites; 66 per cent with diarrhea; and only 4 per cent with normal stools. In China the disease as a rule is not considered serious or dangerous. As has been said, mass of infection is of primary importance, and exposure to conditions allowing frequent or constant reinfection is a major consideration in the gravity of the disease.

Treatment in general has been ineffective. However, in late years cases have been reported cured by G. C. Shattuck in Boston and Reed and Wyckoff in San Francisco, using courses of tartar emetic intravenously, preferably in association with neosalvarsan.

Two problems are evident in California with reference to clonorchiasis: (1) Is there danger of the disease spreading from patients already in California? (2) Is there danger of endemic foci being established in California? The answer to both questions is in the negative. Wayson notes that no infection has ever been proved in California snails, even though species presumably infectible are abundant. He also points out that California streams are cold, thus inhibiting and destroying these delicate larvae and cercariae. The intermediate cycle requires specialized molluscan and piscine hosts and the necessary warmth of pond waters. In Pacific Slope states the previous factors plus the good sewage disposal and the non-use of uncooked fish make it a practical impossibility for clonorchiasis to spread or gain endemicity on the Pacific Coast. No single case of such spread or transmission has yet been reported. These considerations lead one to question the justification of rating clonorchiasis as a "dangerous contagious disease," and as a sufficient ground for immigration exclusion.

That this conclusion is justified is shown by the very recent removal of clonorchiasis from the list of excludable diseases.

ALFRED C. REED,
San Francisco.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION

PERCY T. PHILLIPS.....President
WILLIAM H. KIGER.....President-Elect
T. HENSHAW KELLY.....Vice-President
EMMA W. POPE.....Secretary-Editor

OFFICIAL NOTICES

State Dues—State and county dues are payable January 1, 1928. Prompt payment avoids thoughtless delinquency. Few members evade payment. The surprised and apologetic responses to notification of delinquency letters furnish ample proof that negligence and not intention is responsible. To the dilatory, CALIFORNIA AND WESTERN MEDICINE is not mailed after April 1, and the missing copies can seldom be furnished to reinstated delinquents. Help your county and state office by the habit of prompt payment of annual dues on the first day of each year.

* * *

State Association dues range from \$20 in Washington, D. C., to \$2 or \$3 in Alabama, Arkansas, Mississippi, and North Carolina. Arizona and Minnesota charge \$15. The usual is \$8 and \$10. Massachusetts, who was able to keep to \$5 dues for many years, is now advocating the necessity for expansion of service by a raise from \$8 to \$10. California state dues for 1928 were fixed as of \$10.

* * *

When members inquire what they get for their dues they want a statement of tangible returns: the Journal, the State Meeting, the Placement Bureau, the Extension Service, the Medical Defense and possibly a Library Service.

The greater and more intangible values of membership are but dimly visioned by these practical minds.

Were there no ethics of the Medical Association every practitioner of medicine could formulate his own code and, in proportion to his financial stress, allow his standard to be deflected.

Were there no Council of Pharmacy to pass upon the merits and demerits of drugs the shelves of pharmacists would groan again under the load of quack nostrums.

Were there no standard of medical education the incompetent would be indistinguishable from the competent.

The stimulus to continued progress is largely furnished by the interchange of thought at medical gatherings, by the writing of papers, and by the discussion of papers of others. The man who takes part is the mentally progressive—he who recognizes his mental inferiority shuns discussion. The intangible stimulus to renewed mental interest is more than compensatory—the friendships there formed, and cemented, cannot be counted in money value.

Medical organization with all its tangible and intangible value is made possible only through membership in county, state, and national associations. In California of 7699 licensed physicians 4328 are members of our Association. Of those not now members at least one-third would gladly join were they cordially invited. We again urge each county secretary to review carefully the reason why each non-member in his county is not a member of the California Medical Association and to express to every eligible man

in his community the earnest wish that he apply for membership in the California Association.

* * *

Council Meeting—The next regular meeting of the Council will be held on Friday, January 20, 1928, at the Palace Hotel, San Francisco.

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The regular meeting of the Alameda County Medical Association was held at the Ethel Moore Memorial Building, October 17, 1927, at 8:20 p. m. In the absence of President George Rothganger the meeting was called to order by Vice-President J. L. Lohse. The program of the evening was presented by the San Francisco County Medical Association.

Dr. Harry Spiro discussed "X-Ray of the Heart and Aorta," saying that in his opinion it was the most useful diagnostic and prognostic agent at the command of the cardiologist. The doctor conceded the usefulness of properly taken histories, physical examinations, and electrocardiograms, but felt that the x-ray was the most helpful agent at our command. He pointed out that the chief source of error in x-ray interpretations was due to improper position in taking films, and impressed the fact that rotation of the patient to proper angle was absolutely necessary in order to get data that were of use to the clinician. The doctor showed moving pictures of his methods of making orthodiagrams and of measuring the various diameters of the heart and aorta. His paper was discussed by Dr. William Sargent.

The second paper of the evening was by Dr. John Homer Woolsey, who spoke on the subject of "Acute Osteomyelitis of the Lower Jaw." The doctor illustrated his talk with lantern slides showing that the infection traveled along the inferior dental canal and emphasized the importance of conservative treatment consisting of simple incision and drainage in acute osteomyelitis. In chronic osteomyelitis the treatment should consist chiefly of removal of loosened sequestra. The discussion on this paper was opened by Dr. H. H. Hitchcock and continued by Dr. L. I. Oppenheimer and Dr. S. B. Fountaine.

Doctor Naffziger spoke on the subject "Observations on Injuries of Peripheral Nerves," showing lantern slides and moving pictures of cases. The doctor discussed injuries to peripheral nerves demonstrating the type and extent of paralyses emphasizing particularly changes brought about by injury to the musculospiral, the circumflex, and facial nerves. He laid great emphasis on the fact that surgery should be done as soon after injury as possible in order to prevent fibrosis. He advised splinting of paralyzed muscles, removing splints once in twelve hours for passive motion, massage, and electric physiotherapeutic treatment. Doctor Naffziger's paper was discussed by Dr. Warren B. Allen and Dr. F. J. Carlson.

GERTRUDE MOORE, *Secretary*.

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CONTRA COSTA COUNTY

The regular meeting of the Contra Costa County Medical Society was held in Richmond at the offices of Doctors Abbott, Hedges and Hely, on October 29, 1927, being called to order by President McCullough.

An interesting talk on "Fractures of the Long Bones" was given by Doctor Cleary illustrated by models of various splints devised by himself and

others as a result of World War experience. Doctor Cleary imparted a number of useful tips regarding the handling of these fractures. Many questions were asked and answered, and the talk was greatly enjoyed by all present.

The Constitution and By-Laws were read and adopted, and the secretary was instructed to have them printed for distribution.

The date for the annual banquet was set for November 12.

The question of patients able to pay for medical care being treated free of charge in the large clinics was brought up. The consensus of opinion was that each individual physician should report to the Social Service of such clinic any such cases coming under his notice. It was pointed out that where thousands of patients are being handled it is physically impossible to thoroughly investigate each case.

S. N. WEIL, *Secretary*.



KERN COUNTY

The October meeting of the Kern County Medical Society was held at the Kern General Hospital Thursday, October 20. The meeting was called to order by Doctor McClain, president. The minutes were read by Doctor Jones, secretary. As there was no correspondence, Mr. Brown, representative of the Department of Agriculture, was introduced. Mr. Brown explained very thoroughly the system of inspecting and grading milk to be used if accepted by the Board of Supervisors.

A resolution was passed to appoint a committee to draw up an ordinance to be brought before the Supervisors on Monday the 24th relative to inspection and grading of milk. Committee: Doctors Compton, Bell, and Jones, chairman. Thanks were extended to Mr. Brown.

Doctor Reed of the Orthopedic Hospital, Los Angeles, was introduced. He gave a very interesting paper on "Polionmyelitis" and its treatment. Refreshments were then served in the banquet room, and later two reels from the Orthopedic Hospital, Los Angeles, were shown illustrating the treatment given such cases. Doctor McClain thanked Doctor Reed in behalf of the Kern County Medical Society.

The regular meeting of the Kern County Medical Society was held at the Kern General Hospital, November 17. In the absence of Doctor McClain, president, the meeting was called to order by Doctor McKee, past president. The minutes were read and approved as read. The following doctors were elected to office for the coming year: Dr. Robert M. Jones, Bakersfield, president; Dr. P. F. Page, Taft, vice-president; Dr. J. M. Kirby, Bakersfield, secretary-treasurer; Dr. Francis Hamlin, delegate; Dr. Joe Smith, alternate.

The following committees were appointed:

Auditing Committee—Dr. C. A. Morris, Dr. William H. Moore.

Annual Banquet—Dr. L. H. Fox (chairman), Dr. George E. Bahrenburg, Dr. J. M. Kirby.

Dr. Fred R. Fairchild, Woodland Clinic, was introduced. He gave a very interesting talk on "The Most Important Single Factor in Surgery." Dr. John D. Larson, Woodland Clinic, discussed the importance of a definite routine in diagnosis. Dr. Schuyler D. Pulford discussed and illustrated the importance of modern conformation and diagnosis. Thanks were extended to the doctors for their interesting talks. The meeting adjourned to the banquet room, where light refreshments were served.

ROBERT M. JONES, *Secretary*.

PLACER COUNTY

The Placer County Medical Society held its annual meeting at the Masonic Hall, Auburn, Saturday evening, November 12, at 8 p. m., the president, Dr. J. A. Russell, presiding.

There were present the following members and visitors: Members—J. A. Russell, C. J. Durand, J. G. Mackay, W. M. Miller, R. F. Rooney, M. E. Thoren, C. C. Briner, M. S. Briner, G. H. Fay, C. E. Lewis, R. A. Peers. Visitors—Doctor Gibbs and Doctor Rasor of Weimar, Dr. H. N. Kanner and Dr. Dudley A. Smith of San Francisco.

The following officers were elected to serve the society for 1928: R. J. Nicholls, president; J. Gordon Mackay, vice-president; R. A. Peers, secretary-treasurer; C. J. Durand, associate secretary; C. E. Lewis, delegate; J. A. Russell, alternate.

Dr. Szabo Kalman of Roseville, who transferred from Siskiyou County, was elected a member of the Placer County Medical Society.

Resolutions on the death of Dr. Orren L. Barton of Loomis were presented, and a committee consisting of Doctors Fay, Mackay, and Durand, were appointed to draft resolutions on the death of the late Dr. S. H. Rantz of Placerville.

Dr. Robert F. Rooney of Auburn, dean of the medical profession of Placer County, gave a very interesting talk on practice in Placer County in pioneer days and displayed and explained the use of various instruments in his surgical case of that period.

Dr. Harry N. Kanner of the University of California Hospital staff then gave an address on "The Demonstration of Forceps with a Mannequin." Doctor Kanner gave a short history of the origin and development of obstetrical forceps and, after showing the various types of forceps now used, gave a demonstration of the application of the forceps in the various presentations. Doctor Kanner's address and demonstration were very complete and of great interest.

Dr. Dudley A. Smith of the University of California Hospital staff then addressed the society on the "Importance of Technique in Rectal Examinations." The doctor stressed the importance of a thorough anal, rectal and sigmoid examination. He gave a brief description of the symptomatology of pathology in the lower bowel followed by an outline of treatment for the more common and some of the rarer disease conditions. Following his address Doctor Smith gave a lantern slide demonstration illustrating the anatomy of the lower bowel and surrounding tissues, followed by other illustrations showing in detail his modification of the Coffey operation for cancer of the rectum. Later Doctor Smith showed the various instruments used by him in the operations described. Doctor Smith's paper was very practical and was the subject of general discussion.

There being no further business the meeting adjourned.

ROBERT A. PEERS, *Secretary*.



SACRAMENTO COUNTY

The October meeting was held in the Empire Room of the Hotel Sacramento on the evening of October 18. There were forty-two in attendance. In addition, we had the pleasure of being host to the president of the California Medical Association, Percy T. Phillips. Doctor Phillips was meeting here with the State Board of Medical Examiners and brought with him two members of the board, Doctors Smith and Morton. The minutes of the previous meeting were read and approved.

Case Reports—Frank P. Brendel presented two patients. Both had suffered fractures of the os calcis. In both instances Brendel had used tibial bone grafts to hold the fragments.

William A. Beattie reported a case of spina bifida. In this instance the meningocele type has been oozing

spinal fluid since birth. The baby is now 4½ months old and is thriving. The interesting feature here is the fact that the baby has escaped infection during all this time.

Joseph E. Yates reported the removal of a true myoma of the uterus.

For our evening's program we heard from Charles E. Schoff and William A. Beattie. Both doctors had recently returned from Europe and told us of their contacts there.

Schoff stressed the diagnostic acumen of the French physicians and thoroughly explained their system of conducting clinics as exemplified by the Saint Louis Hospital. One of Schoff's main desires during the trip was to study the work of Sabouraud. He found Professor Sabouraud now engaged entirely in the treatment of diseases of the hair and scalp. He has hundreds of patients under treatment for ringworm by means of x-ray. He provokes epilation and, by the way, is still using gas tubes. The reception of an inquiring American by English and Scotch physicians is all that can be asked for. It seems as though they never tire of trying to give you everything they have.

Beattie was particularly interested in hospital organization. He found this phase of medical care in Vienna to surpass, by far, that of Paris. The Viennese are at present stressing, to the extreme, early recognition of incipient tuberculosis. That disease is rampant in Vienna. Beattie came in contact with several outstanding men; Professor Bauer and his work with the endocrines was one of these.

Andrew W. Morton of San Francisco was called upon by Smith McMullin to add a few words on European impressions. Morton spoke briefly and expressed the opinion that the thoroughness of the German surgeon is not surpassed.

Application for Membership—The first reading of the applications of Oliver H. Perry, W. J. Vandenberg, and James Travis Vance were read for the first time. After the second reading of the applications of Louis Gouguet, Raymond Primasing, and Max C. Isoard, a vote was taken. All were elected to membership.

The board of directors reported the transfer of Vernon F. Kennedy to Phoenix, Arizona.

They approved the four new amendments to the Constitution and By-Laws.

The new amendments to the Constitution and By-Laws, which included (1) a method for amending the by-laws; (2) a new ruling on the length of residence of an applicant for membership as well as a check on the constant resubmission on a rejected application; (3) a proviso for the election of a transfer member from the floor rather than through the board of directors; and (4) new regulations as to the dropping of a member for non-payment of dues and assessments were unanimously adopted.

The meeting adjourned to a buffet lunch.

BERT S. THOMAS, *Secretary*.



SAN BERNARDINO COUNTY

Minutes of the San Bernardino County Medical Society meeting held at the San Bernardino County Hospital, November 1, 1927.

The minutes of the previous meeting were read and approved.

Communications were read regarding new members, poliomyelitis serum, and the fall meeting of the Southern California Medical Association.

The following three men were admitted into the society: Dr. C. E. Counter of Loma Linda, Dr. Marcus D. White and Dr. Wallace M. Chapman of Ontario.

The election of delegates to the state medical meeting resulted in the appointment of Doctors Moseley

and Richards with alternates, Doctors Eytngc and Walter Pritchard.

There were thirty-four members present.

The program of the evening was then entered upon. It consisted of: "Rectal Constipation." Autochrome lantern slides of anorectal pathology. By A. J. Murieta. Doctor Dole opened the discussion.

Luncheon was served at 10:30.

Meeting adjourned.

E. J. EYTINGE, *Secretary*.



SAN DIEGO COUNTY

The monthly dinner of the medical society on October 11 brought a generous attendance at the Golden Lion where, after an excellent repast, the following program by home talent was presented:

"Acrodynia with Report of Case"—Rieta C. Hough.

"Recent Advances in Radiation Therapy"—Lyell C. Kinney.

Doctor Hough's paper on this comparatively rare condition was well presented and gave a comprehensive summary of the present knowledge of the subject as well as the theories as to its causation. Doctor Thornton discussed the paper at some length.

Doctor Kinney's lantern talk on the advances in the treatment of various conditions by radiation was a masterly discussion. Avoiding controversial subjects, the doctor clearly expressed the conditions in which radiation had proven itself of unquestioned value with or without the cooperation of surgery. One must be impressed with the ever broadening field of usefulness developed in this comparatively recent branch of therapy. This paper was discussed by Doctors Churchill, Weiskotten, Clark, Geistweit, Andrews, and Belford. The evening was a distinct scientific treat.

The staff of the Scripps Memorial Hospital met Tuesday evening, November 1, for routine business. Doctors Lazelle and Smith presented an unusual case of ulcer of the stomach which baffled diagnosis for a time.

Dr. Thomas O. Burger, recently returned from the East, discussed informally the surgery of the vascular system, dwelling especially upon the newer technique of embolectomy and the obliteration of varicose veins by injections of irritating substances.

The Scripps Metabolic Clinic has completed plans for the erection of a new building of much greater capacity than the present one. Its phenomenal success in the short time it has been in operation demands this expansion.

The election on November 8 resulted in the following officers of the medical society for 1928: J. M. McColl, president; L. H. Redelings, vice-president; W. H. Geistweit, Jr., secretary; Willard H. Newman, treasurer. Councilors: A. E. Elliott, E. C. Lee, W. W. Belford. Milk Commission: O. B. Cordua. Delegates to State Society: Mott H. Arnold, Thomas O. Burger, Will H. Potter. Alternates: C. E. Howard, F. L. Macpherson, C. E. Rees. Directors of Telephone Exchange: Martha Welpton, one year; J. H. Young, two years; Will H. Potter, three years.

On the evening of election day the society dined at the Golden Lion Tavern, following which an excellent program was provided by home talent:

"Influenza and Its Relation to Tuberculosis"—M. M. Doria.

"The Esophagus and Air Passages"—Charles W. Brown.

Doctor Doria's paper was a strong plea for the consideration of influenza as a serious disease, possible of many complications and sequelae in the course of which consultation should more often be sought than

is customary. The disease is not being taken seriously enough.

Doctor Brown presented a series of case histories well illustrated by radiographs showing the vagaries of foreign substances in the air passages.

Both of these papers were liberally discussed, demonstrating that well-prepared offerings by home doctors are not only appreciated but draw free discussion. Let us have more of them.

ROBERT POLLOCK.



SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held at the Medico-Dental Club Hall, corner North Sutter and Miner Avenue, Thursday evening, November 3, 1927, Dr. J. W. Barnes presiding. The meeting was called to order by the president at 8:30 p. m. Thirty-two were in attendance. Those present were: Drs. S. R. Arthur, J. W. Barnes, E. L. Blackmun, J. F. Blinn, H. J. Bolinger, C. A. Broaddus, H. S. Chapman, Fred J. Conzelmann, J. T. Davison, C. F. English, William Friedberger, E. C. Griner, S. Hanson, C. D. Hollinger, J. P. Hull, H. E. Kaplan, S. E. Latta, R. T. McGurk, F. G. Maggs, B. J. Powell, D. R. Powell, S. F. Priestly, G. H. Rohrbacher, George H. Sanderson, J. J. Sippy, Margaret H. Smyth, Hudson Smythe, C. V. Thompson, I. B. Thompson, G. J. Vischi, B. G. Walker, and M. P. Shaughnessy, attorney at law, guest and speaker of the evening.

The minutes of the previous meeting were read and approved. A communication from Dr. R. C. Kirkwood, director of Bret Harte Sanatorium at Murphy, the joint San Joaquin and Calaveras counties institution for tuberculosis patients, requesting that the society appoint from its members a committee of three to act as advisory in matters pertaining to the welfare of patients, was read. The secretary moved, seconded by Dr. Dewey R. Powell, that the Chair be authorized to appoint a committee of three as requested in Doctor Kirkwood's letter. The motion carried. The Chair appointed Drs. G. H. Rohrbacher of Stockton, H. J. Bolinger of Lodi, and E. W. Weirich of Angels Camp to serve on this committee.

The Chair declared nomination in order for directors and standing committees for 1928. In accordance with the Constitution, the Chair nominated the following twelve for directors: Drs. H. S. Chapman, Fred J. Conzelmann, J. F. Doughty, Linwood Dozier, F. G. Maggs, R. T. McGurk, Barton J. Powell, Dewey R. Powell, John J. Sippy, Hudson Smythe, Margaret H. Smyth, C. V. Thompson. From the floor were nominated J. W. Barnes, C. F. English, and G. H. Rohrbacher.

The following were nominated for standing committees in 1928:

Committee on Admissions: Drs. J. D. Dameron, J. V. Craviotto, E. F. English, J. P. Hull, and B. F. Walker.

Committee on Ethics: Drs. C. F. English, Margaret H. Smyth, Barton J. Powell, R. T. McGurk, and C. D. Hollinger.

Committee on Finances: Drs. J. V. Craviotto, Dewey R. Powell, and Fred P. Clark.

Committee on Programs: Drs. G. H. Rohrbacher, George H. Sanderson, and S. Hanson.

Delegates and alternates to State Medical Association for 1928:

Delegates: Drs. J. W. Barnes, Barton J. Powell.

Alternates: Fred J. Conzelmann, C. V. Thompson.

R. T. McGurk gave his report as chairman of the legal committee on county hospitals relations. The Chair introduced M. P. Shaughnessy, attorney at law and legal advisor of the society, who spoke on the laws governing county hospital and regulations per-

taining to the admission of patients to these institutions in the state of California. He stated that county hospitals were established for the care, medical and surgical treatment of the poor and indigent sick and for no other purpose, and that the practice of admitting pay patients to county hospitals was contrary to law; and inasmuch as every county in the state is confronted with problems of a like nature as this society, it was his opinion that it was a problem for the California Medical Association rather than the concern of one county as the expense of having this evil corrected, would be too much for one county society to bear. The speaker suggested that there should be no cessation of efforts until the problem is definitely solved by the courts. He made the gesture that the society procure Dr. O. D. Hamlin, councilor for this district, and Hartley F. Peart, attorney at law and general counsel for the California Medical Association, as speakers to explain the various problems and difficulties of many of the County Medical Societies and their relations to county hospitals with reference to the care and treatment of the indigent sick. He felt it was a matter of educating the taxpayers to a realization of the situation and that it is to their interest to stop the admission of pay patients to county hospitals, for, as it now stands, the many are paying the hospital and medical service for a few who are perfectly able to pay for this service themselves, and these few are often depriving the poor and indigent sick of efficient hospital care to which they are lawfully entitled.

Dr. Barton J. Powell moved, seconded by Dr. S. Hanson, that the society avail itself of the service of Doctor Hamlin and Attorney Peart at a regular meeting of the society in the near future. The motion carried.

The Chair extended the thanks and appreciation in behalf of the society to the speaker of the evening.

Moved by Dr. Dewey R. Powell, seconded by Dr. J. P. Hull, and carried, that the meeting adjourn.

The meeting adjourned at 9:30 p. m.

FRED J. CONZELMANN, *Secretary*.



SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held in the staff room of the St. Francis Hospital on Monday evening, November 14, with President H. E. Henderson in the chair.

There were present at the meeting twenty-six members of the society and a number of guests.

Dr. A. S. Schwartz of Los Angeles gave a very interesting paper on "Punch Operations of the Prostate." This paper was discussed by Doctors Pierce, Thorner, and Spaulding.

Dr. R. R. Newell of San Francisco showed moving pictures of a beating heart. Diagrammatic comparisons were made of normal and abnormal heart beats.

It was moved, seconded and carried that this society invite the Southern California Medical Society to meet in Santa Barbara at its next meeting in April, 1928.

Expressions of thanks from Dr. Edward L. Markthaler and Mrs. Bagby and son for flowers sent during recent bereavements were read by the secretary.

There being no further business the meeting adjourned.

WILLIAM H. EATON, *Secretary*.



SISKIYOU COUNTY

The Siskiyou County Medical Society met for its regular meeting at Etna, October 30, and enjoyed the happy privilege of honoring Dr. E. W. Bathurst of Etna, who this month celebrates his fiftieth year of

continuous and active practice in Siskiyou County.

After the usual business had been transacted we were delightfully addressed by Doctor Bathurst, who related some of the incidents in his life's work as follows:

Dr. E. W. Bathurst, after receiving some training in Liverpool, England, and the French Colony of New Caledonia in the South Seas, graduated from the Medical College of the Pacific in 1877, and immediately thereafter came to Siskiyou County.

At that time the railroad out of San Francisco terminated at Redding, and the remainder of the journey had to be done by stage.

His destination was Sawyers Bar, where there were employed some three hundred miners. Here he located and remained until 1882 when he moved to Etna, and so for the past fifty years has been carrying on the practice of medicine in this county faithfully and well.

Among his coworkers in Siskiyou County at that time were Drs. D. Ream, H. Robertson, A. M. C. Smith, Newton, and Hill.

Roads throughout the county were in a decidedly embryonic stage, mere pathways, and therefore travel was mostly by horseback.

Doctor Bathurst told us that his equipment at that time consisted of a stethoscope (probably the only one in the county), a thermometer, a hypodermic outfit, an obstetrical kit, and an amputation set.

This was during the pre-Listerian period, and as most of the larger instruments were mounted with hard rubber handles, this of itself precluded boiling.

Asepsis and antisepsis were not known; a simple wiping of the instruments was sufficient to prepare them for the next case.

He stated that the medical fees were approximately what they are today, *i. e.*, \$2 for an office visit, \$2.50 town visit, \$1 mileage, and obstetrical cases \$25.

There were then practically no trained nurses in the county, the doctors doing or supervising the nursing of their patients.

Diagnosis had of necessity to be gleaned by careful and accurate bedside observation, palpation and auscultation, which was usually done by direct ear-to-chest method.

Laboratory aids consisted only of the heat and nitric acid test for albumin and the Fehlings test for sugar.

Novocain and cocain were just beginning to be used, and vaccines and antitoxins, except for variola, were unknown.

Among the various diseases which were quite prevalent in these early days, but which are becoming more and more infrequent, are variola, scarlet fever, summer diarrhea, and diphtheria.

Diphtheria epidemics were frequent and at times the odor from certain infested mountain towns could be detected a quarter of a mile away.

The treatment consisted of the infusion of golden seal and sage, together with honey and borax; massive doses of iron and calomel and local application of Loeffler's soln.

The mortality was surprisingly low and compared favorably with that of today, in spite of our obvious advantages.

The mortality in these epidemics was about 5 to 10 per cent.

The incidence of obstruction to the air passages was small.

The physicians were called upon to labor all day and on into the night, seeking shelter and rest whenever the opportunity afforded. They would ask to be called at a certain hour and would untiringly arise and continue on their "rounds."

Doctor Bathurst told interestingly of long, hard rides over mountains, through storms and snows, for

the purpose of setting fractures, delivering offspring, or attending the sick.

He told of quaint Indian customs or habits as, for example, that of tying the cord to the thigh by means of a leather leash during the interval between the second and third stages of labor to prevent them from going back in for "the liver to cat up."

Doctor Bathurst is energetically carrying on an extensive active practice. He is hale and hearty and is beloved alike by countrymen and colleagues.

He is excellently well read on present-day medical or general topics alike, and furnishes a worthy inspiration to all his associates old and young.

At this meeting the following officers were elected for the coming year: Harold A. Morse, Hilt, president; W. H. Haines, Etna, vice-president; C. G. Reynolds, Yreka, secretary-treasurer.

Two new members were elected to the society as follows: Clyde G. Reynolds, Yreka; Dave F. Dozier, Weed.

The meeting, which was opened in honor of Doctor Bathurst, was closed by a standing vote of reverence and remembrance for Dr. C. W. Nutting, Sr.

HAROLD A. MORSE, *Secretary*.



TULARE COUNTY

The regular monthly meeting of the Tulare County Medical Society was held at Motley's Café in Visalia, following dinner at 6:30 p. m.

In the absence of President Zumwalt and Vice-President Paine the meeting was called to order by Secretary Campbell.

Members present were: Doctors Groesbeck, Bond, Preston, Betts, Brigham, Kahn, Campbell, Lipson, Ginsburg, Seligman, Furness, Rivin, and Weiss.

It was voted to renew our group subscriptions for two years to *Hygeia* magazine, which we placed in most of the libraries of Tulare County two years ago.

Dr. Frederick G. Linde, orthopedic surgeon of San Francisco, was present and spoke on Infantile Paralysis, with especial attention to its convalescent and late treatment. His talk was greatly enjoyed by all, and a vote of appreciation was given by the society for his address. Discussion followed.

Meeting adjourned at 10 o'clock.

H. G. CAMPBELL, *Secretary*.

CHANGES IN MEMBERSHIP

New Members—Alameda County—James Frug, Oakland; James R. Scott, J. Dwight Wilson, Berkeley.

Los Angeles County—Philip S. Burnham, E. M. Claiborne, Shuler Fagan, Harley F. Gunderson, H. H. Hattery, O. O. Hendrixson, Louis E. Martin, Wallace J. Miller, Robert E. O'Connor, Joseph C. Savage, Los Angeles; Robert M. Dodsworth, Azusa; Carl Gilbert Johnson, John F. Snedaker, Long Beach; Frank R. Morgan, Santa Monica; H. B. Rickabaugh, Alhambra; M. J. Rowe, Norwalk.

Orange County—Edward H. Brunemeier, Placentia; Kenneth H. Sutherland, Santa Ana.

Sacramento County—Louis Gouguet, Sacramento.

San Francisco County—George L. Baker, Cabot Brown, Frank M. Close, Thomas G. Dabney, Lawlor A. Drees, Marion O. Grinstead, Fred D. Heegler, John H. Mansfeldt, George A. Wood, San Francisco.

Transferred Members—Harry M. Kanner, from Placer County to San Francisco County.

John W. Bardill, from Imperial County to Ventura County.

Vernon F. Kennedy, from Sacramento County, California, to Phoenix, Arizona.

Dave F. Dozier, from Sacramento County to Siskiyou County.

Clyde G. Reynolds, from Sacramento County to Siskiyou County.

DEATHS

Brooks, Clifford H. Died at Santa Ana, October, 18, 1927, age 42 years. Graduate Medical Department Iowa State University, 1910. Licensed in California, 1911. Doctor Brooks was a member of the Orange County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Bucher, William H. Died at Los Angeles, September 13, 1927, age 69 years. Graduate of the Medico-Chirurgical College of Pennsylvania, 1896. Licensed in California, 1912. Doctor Bucher was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Crum, Robert L. Died at Los Angeles, October 26, 1927, age 47 years. Graduate of the Medical Department St. Louis University, Missouri, 1911. Licensed in California, 1911. Doctor Crum was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Kistler, Samuel L. Died at Los Angeles, October 23, 1927, age 68 years. Graduate of the Starling Medical College, Ohio, 1882. Licensed in California, 1886. Doctor Kistler was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Mansfeldt, Oscar. Died at San Francisco, October 30, 1927, age 61 years. Graduate of the Cooper Medical College, San Francisco, California, 1897. Licensed in California in 1898. Doctor Mansfeldt was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

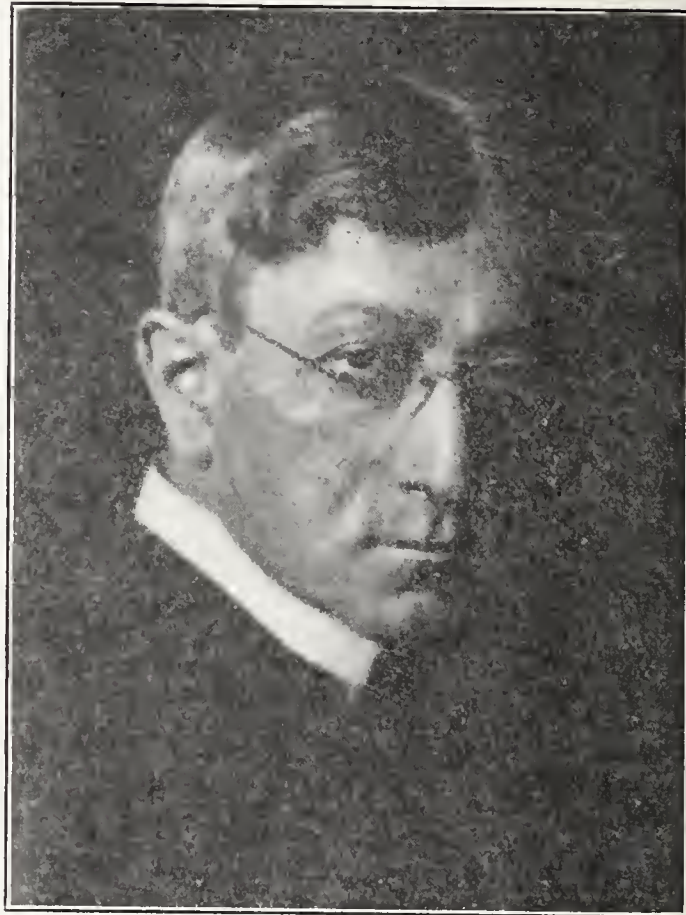
McGinnis, George H. Died at San Diego, November 12, 1927, age 54 years. Graduate of the National Medical College, Illinois, 1898. Licensed in California, 1915. Doctor McGinnis was a member of the San Diego County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Ray, Daniel F. Died at Stockton, October 20, 1927, age 70 years. Graduate of the Medical Department, Vanderbilt University, Tennessee, 1888. Licensed in California in 1898. Doctor Ray was a member of the San Joaquin County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Watanabe, Junsai. Died at Los Angeles, September 9, 1927, age 66 years. Graduate of the Tokyo Medical College, Japan, 1897. Licensed in California, 1901. Doctor Watanabe was a member of the Imperial County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Winnard, Wellington Leroy. Died at Los Angeles, October 26, 1928, age 59 years. Graduate of Chicago Homeopathic Medical College, Illinois, 1890. Licensed in California, 1901. Doctor Winnard was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

OBITUARY



DR. MORRIS HERZSTEIN

Recently by death there was removed from the roster of California physicians a name that will endure.

Dr. Morris Herzstein was born in Cologne, Germany, August 20, 1854. He died in San Francisco October 25, 1927, in his seventy-fourth year. Concerning his boyhood he was peculiarly reticent, and of his early activities and experiences we have little interest further than that he was without material resources and dependent upon his own efforts to make his way.

He was graduated in medicine from an obscure school in 1881. He completed his education and received a degree from a German university a decade later. This was supplemented from time to time by travel and protracted residence in the medical centers of England and continental Europe. During these journeys he made many contacts, winning the respect and friendship of teachers and masters. With pleasure I quote a sentence from a letter by Professor Max Michaelis of Berlin of recent date which is clearly in evidence: "I often think of you, my dear friend, whose tenacity in search of knowledge was remarkable though at times you, the student, became the teacher."

Doctor Herzstein's advent in San Francisco forty-five years ago marked an epoch in the life of a character at once conspicuous, distinguished, eminently useful and unique. From the very outset he refused consistently to subscribe to the time-worn doctrine that progress is along the line of least resistance. His philosophy inspired him to face discouragement with patience, to overcome obstacles by courageous effort, and to lend a deaf ear to idle gossip. The currents and countercurrents that beset one's pathway in medical life he met with the deftness of a skilled mariner; purposeful, and with clear vision he set his course and reached his goal. Withal, in the language of one of his intimates, he was modest, kindly, generous, and tolerant above all things of everyone and everything.

Upon his return from Germany in 1891 he organized one of the first well-equipped clinical laboratories in San Francisco and installed therein a competent technician. This interest, generously provided for, be-

came his most valued helpmeet and was shared by many of his colleagues.

Doctor Herzstein's status in life was determined largely by unremitting toil and by the lasting friendships which were its fruitage: two factors inseparably interwoven. In his daily routine personal comfort, recreation, rest, were of small moment. Service, willing service, was his fetish. Friendships that were handed down through three generations were among his most cherished memories. It can be truly said that he was a humanitarian and philanthropist of high order. Throughout his career he sought opportunity to relieve want. His benefactions were manifold and without publicity. At the close of his life he disposed of a large estate with rare wisdom. A recent editorial commenting upon his will is in evidence: "Doctor Herzstein's will is a monument to his American patriotism as well as to his humanitarian instincts and educational enthusiasm. Everything that was his will remain in California. His art treasures go to a San Francisco museum and his money to a wide variety of charitable organizations. Stanford gets \$100,000 for a chair of biology—a chair of the science that he wished to have taught scientifically and not with the Tennessee and Mississippi limitations. The University of California will receive approximately \$500,000 for scholarships for students in medical research work and other purposes. Yes, the will proclaims the man."

UTAH STATE MEDICAL ASSOCIATION

W. R. CALDERWOOD, Salt Lake.....President
E. H. SMITH, Ogden.....President-Elect
FRANK B. STEELE, Salt Lake.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake.....
.....Associate Editor for Utah

COMPONENT COUNTY SOCIETIES

SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held in the Assembly Room, Medical Arts Building, Salt Lake City, Monday, October 24, 1927.

Meeting called to order at 8:08 p. m. by President W. G. Schulte. Eighty-four members and seven visitors were present.

The minutes of the previous meeting were read and accepted without correction.

There were no clinical cases.

First paper on the scientific program was entitled "Lung Surgery," by A. C. Callister, who limited his paper to chronic multiple suppurative bronchiectasis. He discussed the etiology, differential diagnosis, and stressed the importance of lipiodol injections. He described the various methods of surgical treatment and exhibited a patient on whom he had done a thoracoplasty for this condition with excellent results. His paper was illustrated by lantern slides.

This very interesting paper was discussed by F. F. Hatch, G. A. Cochran, and W. G. Schulte.

The second paper was entitled "Hysteria," by Foster J. Curtis. He gave his conception of the disorder and cited typical examples stressing the type of patient in which this disease occurs. He emphasized the necessity of a thorough physical examination to eliminate any organic lesion and also warned against malingering. He exhibited moving pictures of a patient in a hysterical seizure.

This very interesting paper was discussed by H. S. Scott and Garland H. Pace.

Through the courtesy of Mr. George Waters of the Salt Lake Photo Supply Company some official moving pictures of the World War were shown which were extremely interesting.

The secretary read a letter from F. H. Raley, chairman of the Board of Censors, relative to the application of Orin A. Ogilvie, who was ineligible to membership because he has not been licensed by the state of Utah. The secretary moved that he be made an honorary member. This was discussed by T. C. Gibson

and W. H. Beer, who moved a committee be appointed to investigate and report. Seconded and carried. The Chair appointed Sol G. Kahn, chairman, and F. B. Steele and T. C. Gibson as the members of the committee.

T. C. Gibson reported progress for his committee to investigate liability insurance.

Adjournment at 10:10 p. m.

The regular meeting of the Salt Lake County Medical Society was held in the Assembly Room of the Medical Arts Building, Salt Lake City, Monday, November 14, 1927.

Meeting called to order at 8:10 p. m. by President W. G. Schulte. Sixty-three members and eight visitors were present.

An acephalic six months' fetus was presented by G. N. Curtis, who discussed the condition.

J. W. Aird of Provo gave a short talk on an original new method of effectively closing tense upper abdominal wounds. He also gave a talk on Lane's kink, stressing the importance of looking for it in all cases of chronic appendicitis. He estimated that the condition was present in 25 per cent of his cases with that disease.

These interesting talks were discussed by L. J. Paul, Clark Young, and E. F. Root.

"Compression Fractures of the Tibia" was the title of the paper read by C. E. McDermid of Castle Gate. He reviewed the literature on this relatively rare condition, described the method of production, symptoms, diagnosis, prognosis, emergency and subsequent treatment, and reported five cases. His subject was covered very thoroughly and was presented in a masterly manner.

This excellent paper was discussed by S. C. Baldwin, F. S. Bascom, J. W. Aird, E. F. Root, L. N. Ossman, A. L. Huchter, H. C. Holbrook, and M. C. Lindem.

T. C. Gibson reported for his Committee to Investigate Liability and Insurance. He explained the difference in the insurance clause between the policies issued by the Aetna and U. S. F. and G. companies and recommended that a legal opinion be obtained interpreting the clause in the latter policy. This was discussed by W. F. Beer, John Z. Brown, A. C. Callister, T. F. H. Morton, T. C. Gibson, E. F. Root, and L. J. Paul, who moved that the report be accepted except that part requesting legal opinion. Seconded. Discussed by E. F. Root, M. C. Lindem, M. M. Nielson, and C. J. Albaugh. Motion carried.

John Z. Brown moved that the society request that the Medical Arts Building furnish a blackboard. Seconded and carried.

The report of the committee appointed to determine whether or not Dr. O. A. Ogilvie could become an honorary member was read by the secretary. John Z. Brown moved adoption of the report. Seconded and carried.

The secretary read a communication from Judge Harold M. Stephens requesting the appointment of a committee to confer with a committee of dentists and the executive committee of the Community Clinic relative to clinic affairs. Sol G. Kahn moved that this committee be the one recently appointed to investigate charitable institutions of which William T. Ward is chairman. Discussed by F. B. Steele. Seconded and carried.

William F. Beer announced that the banquet in honor of the dentists would be held November 15, 1927. He then moved that the by-laws of the society be changed in order to raise the dues from \$10 to \$15. Seconded. J. P. Kerby moved that the society pay any deficit that may be incurred in giving the dental banquet. Seconded. Discussed by M. C. Lindem. F. B. Steele moved to amend the motion so that the society would pay any deficit incurred binding the library magazines. This amendment was ruled out of order by the Chair. Further discussion by T. C. Gibson and H. C. Holbrook. Motion was carried.

Adjournment at 10:10 p. m.

M. M. CRITCHLOW, Secretary.

MISCELLANY

From time to time in this department of California and Western Medicine, appear columns grouped under the following headings: Comment on Current and Recent Articles in this Journal; News; Medical Economics; Readers' Forum; California State Board of Health; and California Board of Medical Examiners. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Sacramento Hospital—We have just been notified that the Sacramento Hospital has been approved by the Council on Medical Education of the American Medical Association for intern training.

Once More: Member-Fellowships—The attention of members is again called to Fellowships in the American Medical Association. Of the 4328 members of the California Medical Association in 1927, 3299 are Fellows of this national association.

Any member who desires to secure a Fellowship can obtain from his county secretary, or from the office of the state secretary, 1016 Balboa Building, 593 Market Street, San Francisco, the approved application blank for Fellowship. This application must be signed by the state secretary and be accompanied by a check to the American Medical Association for \$5.—*A. M. A. Bulletin.*

New Director for Desert Sanatorium—The Desert Sanatorium announces the appointment of Dr. Roland A. Davison, formerly chief of the division of gastroenterology and metabolism at the Letterman General Hospital, San Francisco, California, as assistant medical director.

Northern California Association of Physiotherapists—The association maintains a registry bureau under the direction of Miss Hilda Knaisenberger at Hahnemann Hospital. The registry bureau is for the doctor who wishes to obtain the well-trained ethical technician as his assistant.

Under the reorganization the association has chosen as the officers: Hazel E. Furscott, president; Margaret Stevenson, vice-president; Florence Burrell, secretary and treasurer.

Drs. Morton Gibbons, Ernest W. Cleary, and Howard Naffziger comprise the Medical Advisory Committee.

The Northern California Association of Physiotherapists had its first meeting Wednesday evening, September 27, at dinner in La Casa Alta, 442 Post Street.

This meeting was the first program meeting of the new organization. Dr. Frank B. Granger of Harvard Medical College, Boston, Massachusetts, and a member of the Physiotherapy Council of the American Medical Association, was the speaker of the evening.

He spoke of the work of the council which has been established by the American Medical Association to get at the truth about physiotherapy procedures; to set standards of training technicians; to train doctors to intelligently prescribe physiotherapy, and to standardize equipment. The council has already published reports on window-glass substitutes for transmitting the sun's ultra-violet rays.

Doctor Granger discussed the relative value of the ultra-violet rays from the sun, the mercury quartz vapor lamp, and the carbon arc lamp. Experiment has shown the mercury quartz lamp treatments to be most efficacious and expeditious, even more so than direct sun rays.

The meeting resolved itself into a discussion which included the after treatment of poliomyelitis, hemi-

plegia, the athletic group of injuries, neuritis, and low-back strain.

The Physiotherapy Association has as its plan for the winter the following program:

November 9—Electrotherapy—Dr. Howard Plank.

February 8—Demonstration of Technique at Stanford University—Dr. H. Langnecker.

April 11—A Trip Through the Equipment Shops.

May 1—The Annual Meeting at Sacramento.

The Leslie Dana Gold Medal, awarded annually to the person who has done most for the conservation of vision in the preceding year, was presented in St. Louis on October 17 to Dr. Lucien Howe of Buffalo, New York, by Lewis H. Carris, managing director of the National Committee for the Prevention of Blindness. Doctor Carris said that Doctor Howe was responsible for the first law on preventing ophthalmia neonatorum, the Howe Law, passed in 1890 in New York State. Similar laws making it obligatory for midwives, doctors and nurses to report promptly all cases of ophthalmia neonatorum observed, and a law requiring the use of prophylactic drops in the eyes of all new-born babies have since been enacted in almost every state in the union.

The last meeting of the Southern California Medical Association was held in the Beaux Arts Building, San Bernardino, Friday afternoon and evening, Saturday morning, afternoon and evening, November 24-25.

A special meeting of the Board of Councilors and additional men was held at the Curtisy Tea Rooms in San Bernardino on Friday, October 7, 1927, at noon. The question of the proposed change in the present method of admitting patients to the County Hospital was thoroughly discussed. The following recommendation was finally determined upon: "That the Board of Supervisors be requested to appoint a committee to consider this matter. The committee to number eight."

One representative from each district appointed by its own supervisor. It is expected that these will be laymen. One to represent the County Hospital, Doctor Meyer; one to represent the County Medical Society; and one to represent all the private hospitals in this county.

This committee would investigate from all angles and obtain testimony from every class or person involved and then submit its findings to the Board of Supervisors.

Pending the submitting of this report it is suggested that the superintendent of the County Hospital be empowered to modify at his own discretion the present order regarding acceptance of fees and the admittance of only charity patients to the County Hospital.—Program of San Bernardino County Medical Society.

Dr. A. K. Dunlap of Sacramento was recently elected president of the Northern California District Medical Society at its forty-third semi-annual meeting held in Stockton, October 25.

Dr. Corneille Heymans—A special lecture will be given on "Contributions to the Physiology and Pharmacology of the Cardio-Inhibitory and Respiratory Centers" by Dr. Corneille Heymans, extraordinary professor of pharmacology, faculty of medicine, University of Ghent, on Wednesday, December 7, at 8

p. m. in Lane Hall, Sacramento Street corner of Webster, San Francisco. The lecture will be illustrated with lantern slides. All members of the profession and medical students are cordially invited to attend.

Noted Viennese Visits U. C. Campus—Sigmund Fraenkel, professor of medical chemistry at the University of Vienna, who has come to America to deliver a series of lectures before medical research groups, is stopping his tour for a month to carry on some research work in the laboratories of the University of California in collaboration with Professor Herbert M. Evans of the anatomy department.

While in Berkeley, Professor Fraenkel will deliver a series of five public lectures on the theory of synthetic remedies, on November 21, 23, 28 and 30, and December 2, in room 110 of Wheeler Hall.

Professor Fraenkel has had a distinguished career, especially in the relations of organic chemistry to medicine. As a young man he worked with such noted authorities as Eugen Baumann, Oswald Schmiedeberg and Franz Hofmeister in biochemistry and pharmacology. He has written a book which has now gone into a sixth edition, because it is the only important and comprehensive text in its field.

He is an outstanding authority on the relation of the chemical make-up of substances to their action on living tissue. The important phase of his work is an attempt to develop synthetic organic chemicals which have an ideal action on living tissue for definite purposes, such as local anesthesia or relief of pain.

His chief work has been on the chemistry of proteins; on the chemistry of nervous, especially brain, tissue; on the chemistry of vitamins, especially a method for the quantitative determination of vitamin B, and on the chemistry of the internal secretions of the endocrine glands, in which field he is now working with Doctor Evans.—*U. S. Clip Sheet*, November 22, 1927.

MEDICAL ECONOMICS

State to Care for Crippled Children—The following extract from the Crippled Children Act of 1927 indicates the scope of the work to be undertaken by the California Department of Public Health in the care of crippled children:

"The State Department of Public Health shall have the power and it shall be its duty to seek out needy physically defective or handicapped persons under the age of eighteen years by local surveys arranged through local lawful authorities, social welfare and other public and private agencies; provided, that no record shall be taken and/or kept except of such children as are specified in this section.

"It shall likewise have the power and it shall be its duty to arrange through such local agencies for local public diagnostic clinics or conferences for such physically defective and handicapped persons, when and where it shall appear necessary and bring to such persons expert diagnoses near their own homes.

"Whenever the parents or guardian of any such physically defective or handicapped person shall be unable, in whole or in part, to furnish for such child or ward, resident of the state, necessary surgical, medical, hospital, physiotherapy, occupational therapy and other service, special treatment, materials, appliances and their upkeep, maintenance, care and transportation, the parents or guardian may petition the Superior Court of the county wherein such parents or guardian is or are resident for a certificate setting forth such fact, and if the judge is satisfied that the parents or guardian is or are unable, in whole or in part, to furnish such services, treatment, materials, or appliances and their upkeep, or such maintenance, care and transportation, he shall issue a certificate to

that effect. Such certificate shall be presented to the State Department of Public Health and it shall be its duty to furnish, in whole or in part, such services, transportation, materials, or appliances and their upkeep, such maintenance, care and transportation as in its judgment are necessary and proper, the expense thereof to be advanced by the State Department of Public Health out of a revolving fund appropriated for that purpose. Provided, however, that the State Department of Public Health may pay the same out of any funds received by it through gift, devise, or bequest, without the possession of such certificate. All moneys expended under the authority of such certificate, as herein provided, shall constitute a legal county charge against the county from which such certificate is issued. Upon presentation to the Board of Supervisors of the county in which such certificate was issued, of an itemized claim, duly sworn to by the secretary of the State Department of Public Health, for the expense of the above set out services, transportation, materials, appliances and their upkeep, care and maintenance and furnished under the authority of said certificate, said Board of Supervisors shall audit and approve said claim, and the county auditor of said county, shall thereupon issue a warrant for the amount thereof payable to the State Department of Public Health, and the county treasurer shall pay the same."—*Weekly Bulletin*, California Department of Public Health.

New Orleans Legislature Limits Service of County Hospital to Indigent Poor—The last legislature passed an act which gave the New Orleans Charity Hospital the right to give free medical service to only those unable to pay for it, thereby attempting to stop an abuse which has existed since the foundation of this institution. That the physician should be exploited for the power that he had become so well an established custom in Louisiana that it led some to publish what they considered an economic fact, viz., that it was cheaper to give applicants medical attention without questioning their ability to pay than to investigate. The objectors probably either had the idea that the population as a whole was poverty stricken, or a groceryman should give credit to everyone, if he wants to be successful financially.—*Western Medical Times*.

Recent Legislation Concerning Establishment of County Hospitals—During the last session of the Florida Legislature, Senate Bill No. 10 was passed and approved by the governor on April 23, 1927. This is an act which enables certain counties to establish county hospitals. It affects only those counties which showed a population of from thirty to sixty thousand inhabitants according to the 1925 census. These counties are Alachua, Escambia, Jackson, Orange, Palm Beach, Pinellas, and Volusia.

The bill specifies that the Board of County Commissioners shall submit the question to a vote when petitioned by five hundred voters from that county. Bonds may also be voted and a tax assessed for the support and maintenance of the County Hospital. The act provides for the creation of a board of hospital trustees and specifies their duties.

The provisions of the act designate the hospitals as institutions to take care of both charity and pay patients.

The attention of the medical societies in the counties affected by this act is directed to the provisions. It is suggested that the matter be discussed at the meetings of county medical societies with the view of determining the need of such an institution in their counties.

Palm Beach has already organized and plans to have a County Hospital if a bond issue can be obtained at the next election. Any support that can be given to this project by organized medicine will doubt-

less repay the effort many times over through the increased conveniences and added facilities for proper medical care of private patients.—*J. Florida M. A.*

Predicting Epidemics of Plague in the Punjab—When plague is at its peak in the Punjab there is little recourse to anything besides vaccination to reduce the mortality. Vaccination being voluntary there is no demand for it except when there is an epidemic, and then the demand is proportionate to the gravity of the epidemic. The table below compares the monthly data relative to vaccinations for 1925 (year in which there was a moderate epidemic) with the corresponding figures for 1926 (year of severe epidemic). The figures in parentheses represent the monthly mortality.

Comparison of monthly vaccinations with monthly mortality (mortality figures in parentheses):

	Jan.	Feb.	Mar.	Apr.
1925	43,729	51,480	70,281	60,961
	(4,455)	(5,093)	(10,040)	(11,885)
1926	33,558	61,943	99,117	222,999
	(2,660)	(7,285)	(19,678)	(34,739)

As the mortality for April varies between 195,000 (1907) and 651 (1921), it is evident that the demand for antiplague vaccine fluctuates considerably. But antiplague vaccine as furnished by the Haffkine Institute requires four or five months for preparation and maturation, for the reaction caused by the inoculation of immature vaccine is severe enough to make it preferable not to use it at that stage.

Antiplague vaccine should be ordered at least four months in advance, or that needed during the epidemic period—March, April, and May—should be estimated in November of the preceding year. An estimate too low would be distressing, and one too high would be financially burdensome, for the vaccine costs \$4000 per 100,000 doses. From this point of view alone the prediction of epidemics of plague is of considerable practicable importance.—*Pub. Health Rep.*

Report of the Committee on Insurance—The committee appointed at the meeting of the council of the Massachusetts Medical Society held October 5, 1927, to consider malpractice insurance of Fellows of the society has the following report to make:

In 1921 a blanket insurance policy against suits for malpractice, as issued by the United States Fidelity and Guaranty Company, was endorsed by vote of the council. In 1923 this group policy was given up and the same company issued individual policies for members only of the Massachusetts Medical Society. During these six years the company has satisfactorily handled nearly three hundred claims, all but a few of which were settled out of court. Of those suits that went to trial all were so well conducted that only one was lost. From the standpoint of the Massachusetts Medical Society and the individual members thereof the service rendered has been most gratifying.

From the viewpoint of the United States Fidelity and Guaranty Company, however, the experience has not been so satisfactory. The number of suits against physicians for malpractice has increased annually by geometrical progression until conditions at present are little short of alarming. A careful tabulation of claims settled shows that the company cannot continue to issue policies at the present rate. The same tables show that certain specialists in medicine are more liable to suits than are general practitioners. In order to meet changing conditions the company proposes, therefore, to equalize the burden and to proportion the cost of liability insurance by doing away with flat rate policies and issuing in their stead policies of unequal premiums varying according to the risks attached to different specialties.—*Boston M. and S. J.*

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

From Volume 1, No. 2, December, 1902
From an article on "Pharmaceutical Standardization":
... A United States Senator, some years ago, when approached on the subject, stated that the medical and pharmaceutical professions could obtain any legislation they really wanted, if they were sure that they wanted it and acted as a concerted whole. Lack of organization has heretofore prevented any action looking toward the remedy of the present evils. . . .

From an article on "Organization Progressing":
... It is within our own personal knowledge that, whereas the sale of liquors, or even such harmless stuff as beer with its 2 per cent of alcohol, is prohibited amongst the Indians, various "patent" medicines are freely sold—and some of them contain as much as 44 per cent of alcohol. The spirit of medical progress is toward prevention—prophylaxis; yet, as the laws now stand, nothing can be done to touch the majority of these traders in lives. A thoroughly organized medical profession could wield an enormous influence; it could see to it that such men were elected to office as would promptly take action in the matter and force the faker out of business. . . .

From an article on "An Obvious Duty Before Wedlock":
... Let both contracting parties to a marriage thoroughly understand their marital and sexual obligations, the one toward the other; and if their parents have not sense nor courage enough to enlighten them, then let the "good old family doctor" step in and tell them what they should know. . . .

From an article on "Affiliation of the County Societies":
... The few county medical societies in the state that have not as yet organized under or complied with the provisions of the State Society for affiliation should do so without delay. . . .
... Formerly any medical society that adopted the Code of Ethics of the American Medical Association was considered in affiliation with that body and could elect delegates to it; now the conditions are altered. Organization is the only path for the regular physicians of the country to tread, and there must be no faltering, no backward tendency, no hesitation, no dragging up of old fights and petty squabbles. . . .

From an editorial on "A California Doctor to be Governor":
A majority of the electors of this state have placed their interests in the hands of a gentleman than whom no man in the ranks of the medical profession has shown a greater regard for strict medical ethics. Doctor Pardee has been a member of the State Society for many years and has shown much interest in its meetings and its aim; he has been in close touch with its members and has the respect of all and the love of many. The position in which he will be placed as Governor of California will be, to say the least, somewhat trying. . . .

From an editorial on "The Bubonic Plague Situation":
There are two equally important points from which the residents of the Pacific Coast states view the

* Through this "Twenty-Five Years Ago" column, it is hoped to familiarize colleagues who in more recent years have joined the California Medical Association, concerning the activities and work of our state association, and of members who were active in the period two decades and a half remote. For older colleagues who were members twenty-five years ago, it has been thought that the references may recall incidents and associations which may be of interest or pleasure to momentarily dwell upon. To know what our predecessors fought for and accomplished should make for increased loyalty to the traditions and objects of our organization.

plague question. One is purely commercial and the other largely professional. The contention of the business man is that public utterances regarding the presence of the disease should be discouraged and prevented, if possible. They reason according to the old saying, that the truth should not be told at all times. They see only possible danger to the trade of the Coast, and decline to look into the future or take a serious view of what might one day develop into a national calamity. . . .

. . . If there is danger of the plague spreading, it becomes the duty of medical men to warn the public and to do all in their power to stamp out the disease upon its first appearance, and not wait until it obtains a foothold and becomes too strong to cope with. . . .

From an article by E. L. Wemple, M. D., on "Report of a Case of Bubonic Plague":

. . . Doctor Wemple, Jr., made a smear that afternoon, and the picture was very much like that of the disease. This smear was shown to Dr. H. A. L. Ryfkogle, and it was his opinion that it contained *Bacillus pestis*, there being a diplococcus infection as well. He said the inoculation of a guinea-pig from the contents of a gland and its death from plague was all that was necessary to make a positive diagnosis of bubonic plague. This was subsequently done by Dr. M. J. White of the United States plague laboratory, and the diagnosis was bacteriologically confirmed. . . .

. . . I am indebted to Dr. Howard Morrow, city bacteriologist, for the following report of his investigations. . . .

From the minutes of the "California Academy of Medicine":

. . . The president, Doctor Montgomery, called attention of the members to the great importance of the paper under discussion. He stated that plague cases had been found in five hospitals in the city, and there was no doubt that eventually it would appear in every hospital in San Francisco. . . .

. . . Doctor Hunkin said he had discussed the relative advantages of excision and amputation with Doctor Sherman and they did not agree. He had recently amputated a leg and found the femur entirely disorganized. At the ankle joint, or just above, the bone was so soft that it could easily be crushed with the fingers.

Doctor Sherman said the bone may be very soft, but not necessarily diseased, and many patients recover when all the diseased bone has been removed. . . .

. . . Doctor Rixford presented a patient upon whom he had performed a bloody reposition of an old luxation at the elbow. . . .

From an article by D. D. Crowley, M. D., on "Suturing of Muscles and Tendons":

. . . In the suturing of divided tendons I have come to the conclusion that it is not proper to use a large needle in a tendon. Neither do I think it expedient to pierce the ends of such tendons with needles, though the tendon is more accurately approximated at its wounded ends. . . .

. . . It is easier to suture with silk than with catgut. . . .

From the discussion on Doctor Crowley's paper:

. . . Dr. K. Pischel of San Francisco: I would like to suggest a suture I have used in my eye work with satisfaction. This suture is very thin and very strong and absorbable. The only drawback is that it is too short—length five to six inches—and I have had no difficulty in getting them. It is the tendon of the rat's tail. The preparation is simple. . . .

. . . Dr. T. W. Huntington of San Francisco: I have found the grafting of tendons of great utility in cases of ten to fifteen years' standing. I have always

found the procedure to be of great utility and advisable, more so in these cases than in any other. . . .

From the December 9, 1902, meetings of the San Francisco County Medical Society:

. . . Doctor Spencer addressed the society as the retiring president. He said he desired to make a few comments, express a few hopes, and offer a few suggestions in the way of action for the future. . . .

. . . In conclusion, I would say that an effort should be made to have men of distinction in our profession from other sections come before us, read papers and join in our discussions. I do not mean to underestimate the abilities of our own members, but I think much good might be accomplished if we had members of other societies visit us from time to time. . . .

From the minutes of the thirteenth semi-annual meeting of the Southern California Medical Society, held at Pasadena:

. . . The meeting was called to order by President Dr. F. C. E. Mattison, who made an appropriate speech, after which an address of welcome was given by Dr. Norman Bridge, Pasadena. . . .

. . . The officers of the society are: Dr. F. C. E. Mattison, Pasadena, president; Dr. J. C. King, Banning, first vice-president; Dr. F. W. Thomas, Claremont, second vice-president; and Dr. F. D. Bullard, Los Angeles, secretary and treasurer. The committee on arrangements for this meeting was Dr. Stanley P. Black, Dr. James H. McBride, and Dr. Norman Bridge. . . .

From a press clipping on "Anti-Tuberculosis League":

. . . With the organization of the Southern California Anti-Tuberculosis League during the recent meeting of the Southern California Medical Association, a movement was formally inaugurated, the importance of which and the possibilities for good in southern California can hardly be overestimated. . . .

. . . This committee reported at the recent meeting in Pasadena, the result of which was the formal organization of the league, with Dr. F. M. Pottenger of Los Angeles as president. . . .

From the minutes of the thirty-second annual session of the Medical Society of the State of California, held at Golden Gate Hall, San Francisco, April 17, 1902:

. . . Whereas, The Mayor of the city of San Francisco has seen fit to remove the so-called "old" Board of Health; and

Whereas, The Chief Executive of the city has stated that he has determined, after prolonged personal investigation, that bubonic plague has never existed in San Francisco; and

Whereas, The position is absolutely unsupported by any competent, unprejudiced physician who has made personal examination of suspects or alleged cases of plague before or after death, or who has examined the bacteriologic evidence presented; and is further in direct conflict with the findings of the federal government experts and special commission; therefore be it

Resolved, That the Medical Society of the State of California emphatically condemns this action on the part of the Mayor of San Francisco, and at the same time endorses the position always maintained by the old Board of Health in its sanitary defense of the people of San Francisco and of the country at large. . . .

. . . The president-elect, F. B. Carpenter, was then escorted to the rostrum by Past President C. G. Kenyon and introduced to the assembly by the retiring president. After making a few felicitous remarks the minutes were ordered read, and were approved as read, and the society adjourned at 6:30 p. m.

GEORGE H. EVANS, *Secretary*.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.
Secretary of the Board

At the annual meeting of the Board of Medical Examiners held in Sacramento, October 17 to 20, the following officers were re-elected for the ensuing year: P. T. Phillips, president; William R. Molony, vice-president; C. B. Pinkham, secretary-treasurer.

At the 1927 annual meeting of the Board of Medical Examiners held October 17 to 20, inclusive, the following changes were made in the status of various licentiates: Archibald A. Atkinson, M. D., probation for five years; William E. Brown (drugless practitioner), revoked October 18; Carleton W. Faull, M. D., revoked October 19; Homer J. Flinn, M. D., revoked October 19, federal and state conviction; Frederick K. Lord, M. D., certificate restored October 18, probation five years without alcohol permit; Ralph Newcomb, M. D., revoked October 20, narcotics; Alanson M. Pond, M. D., revoked October 19, narcotics; John H. Seiffert, M. D., revoked October 18, conviction illegal operation; William B. Shore, M. D., revoked October 19; George H. Wymann, M. D., restored October 17, probation five years without alcohol or narcotic permit.

Special Agent Carter recently reported that Mrs. Charlotte Anderson, Hollywood, on October 26, 1927, pleaded guilty to a charge of violation of the Medical Practice Act and was sentenced to sixty days in the city jail, suspended for two years on conditions that she does not violate the Medical Practice Act in the future.

Reports relate that on November 7 Martha Baker pleaded guilty to a charge of violation of the Medical Practice Act at Santa Monica and was given a suspended sentence of six months.

According to the San Francisco *Examiner* of November 10, Mrs. A. J. L. Bohannon, reported for some time as manager of the Pacific Cancer Institute, 5442 Telegraph Avenue, Oakland, pleaded guilty to a charge of violation of the Medical Practice Act and paid a fine of \$100.

The "College of Enerology" is the newest addition to the long list of so-called colleges in California, its advertisement recently appearing in the San Diego *Union*, and reported as sponsored by Nelson C. Oakley, D. C., of the Clewell School of Chiropractic, A. McKay Jordan and James Rosedale, M. D. Fifty dollars is stated as the price for the complete course, following which will be issued the degree "Doctor of Enerology." The College Incorporation Bill (Chapter 152, Statutes 1927), now regulates degree-granting colleges in this state.

According to the San Francisco *Examiner* of November 10, 1927, Mrs. Ernestine E. Engelhardt, reported as conducting a Cancer Institute at 1000 Thirty-ninth Street, Oakland, pleaded guilty to a charge of violation of the Medical Practice Act and paid a fine of \$100 ("News Items," October, 1927).

William L. Jones, M. D., of Oakland was placed on five years' probation at the October meeting of the board.

According to the Los Angeles *News* of October 1, 1927, the Appellate Court reversed the Superior Court judgment convicting Dr. Elmer W. Little, Los Angeles physician, of selling drugs to Miss Madge Surber, a morphin addict.

Reports relate Mrs. Minnie McCrimmon on November 3 pleaded guilty in the courts of Los Angeles

to a charge of violation of the Medical Practice Act and paid a fine of \$100, it being related that she used "the same 'plaster' system as was used by Emma McCrimmon in treating cancers—a system which recently caused the death of the mother of a Los Angeles police officer. . . ."

Under date of September 28 our special agent reports that Michael J. McGranaghan (licensed chiropractor referred to in "News Items" of February, March and October, 1927, in connection with the death of James McManus, six years of age, following the use of an anesthetic) was sentenced in the Superior Court of San Francisco to pay a fine of \$100 or serve fifty days in the county jail for violation of the Medical Practice Act. "During the course of the trial the court would not permit any testimony to show that the reduction of a congenital dislocation of the hip was in fact surgery, withholding its opinion, however, as to whether or not such practice would be within the scope of a chiropractor, confining testimony only as to the giving of the anesthetic and having found the defendant guilty upon that evidence alone. . . ."

A doctor who prescribes narcotics without the specific purpose of allaying a disease is guilty of violating the Harrison Narcotic Law, according to a decision handed down here today by the United States Circuit Court of Appeals. The decision was rendered in the appeal of Dr. Milton A. Nelms of Walla Walla, Washington. Doctor Nelms was convicted and sentenced by the lower court to serve two years in a federal penitentiary and to pay \$1000 in fine. He appealed on the ground that the Harrison Narcotic Act is unconstitutional.—*San Francisco Call*, October 11, 1927.

After a hearing by the Board of Medical Examiners at the October meeting, charges against Daniel F. Royer, M. D., aged Santa Ana physician, were dismissed.

Charges against Dr. Walter J. Sullivan, one of the defendants in the Ray Raymond death case here last spring, were dismissed in the Superior Court here today on motion of the District Attorney. Insufficient evidence on which to hope for conviction was the basis of the motion.—*Hollywood News*, October 28, 1927.

According to reports, Grace A. Thoreson on November 1 pleaded guilty in Los Angeles on a charge of violation of the Medical Practice Act and was given a sixty-day jail sentence, suspended for two years on condition that she does not violate the Medical Practice Act during her probation. It is related that she is another one of the many so-called cancer specialists and recently is reported to have obtained \$240 for the treatment of a certain individual who, according to reports, when she finally came to the attention of a licensed physician was found to be beyond cure.

According to reports a jury in the Superior Court of Oakland engaged in the trial of K. Watanabe (a registered pharmacist conducting the C-Fu Drug Store), who had been charged with manslaughter following an abortion, disagreed and a new trial was set for December 12.

Blanche Dickerson is reported to have recently pleaded guilty to a charge of violation of the Medical Act at Santa Monica and sentenced to pay a fine of \$100, said sentence being suspended for one year on condition of no further violation of the Medical Practice Act. Report of the special agent relates: "When we approached the place we glanced across a vacant lot and beheld the feet of a woman patient sticking out of an upstairs window, the table or couch on which she was resting extending out of the open window for a foot or so. . . ."

I N D E X

CALIFORNIA AND WESTERN MEDICINE

VOLUME XXVII

JULY TO DECEMBER 1927



Index—California and Western Medicine, Volume XXVII, July to December, 1927

CALIFORNIA AND WESTERN MEDICINE has grown to a size where it is no longer possible to bind the twelve issues of one year in the same volume. Therefore, two volumes a year, one from January to June, inclusive, and the other from July to December, inclusive, will be published, and each volume will be supplied with an index.

An ever enlarging circle of physicians who read systematically are finding the Cumulative Index published quarterly by the A. M. A., and sold for a nominal subscription, of incalculable value. Everything published in CALIFORNIA AND WESTERN MEDICINE, as well as other worthwhile medical magazines, is completely indexed in the "Cumulative" in a most complete author and subject index. To obtain a copy of this index, write to American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

KEY TO ABBREVIATIONS

- Add.—Address.
Or.—Original Article.
C. R.—Case Report.
B. M.—Bedside Medicine.
M. T.—Medicine Today.
Ed.—Editorial.
B. R.—Book Review.

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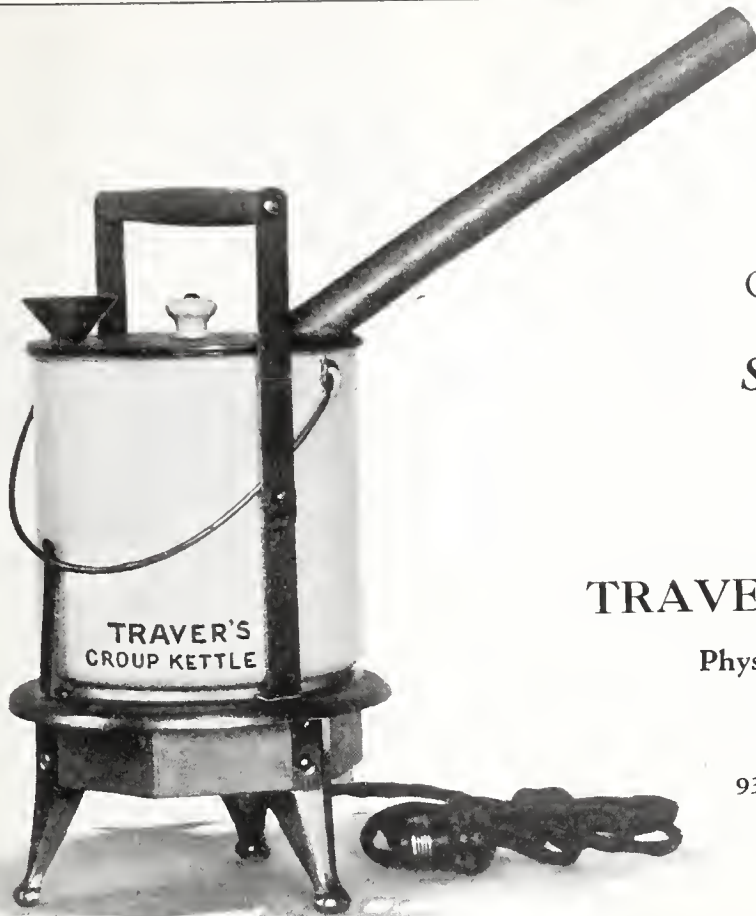
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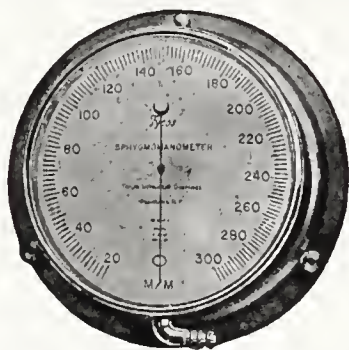
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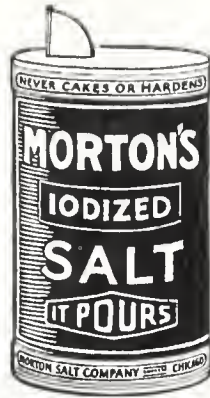
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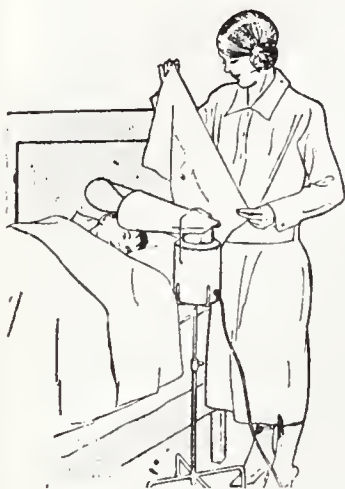
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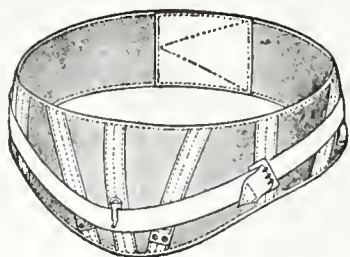
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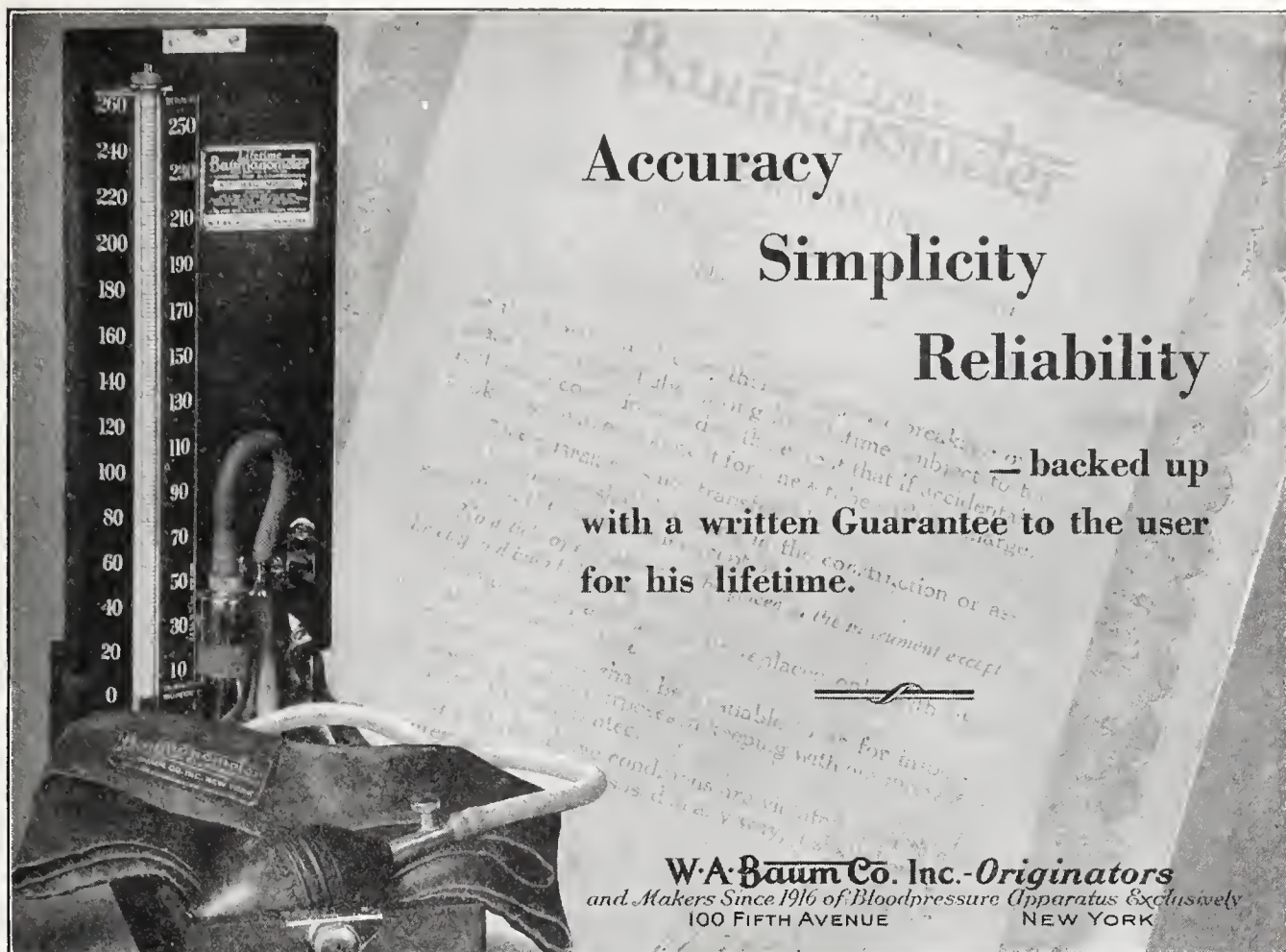
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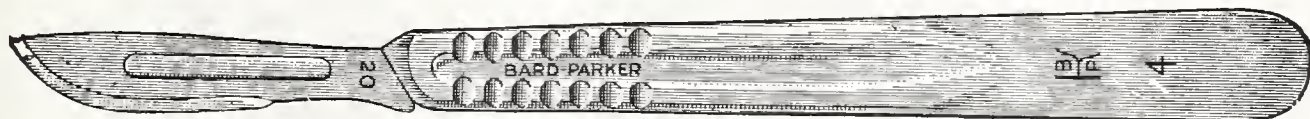
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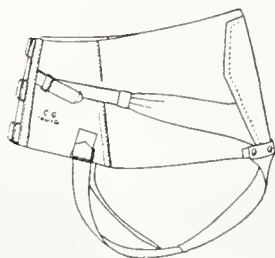
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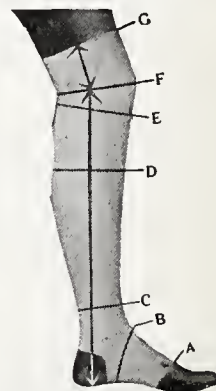


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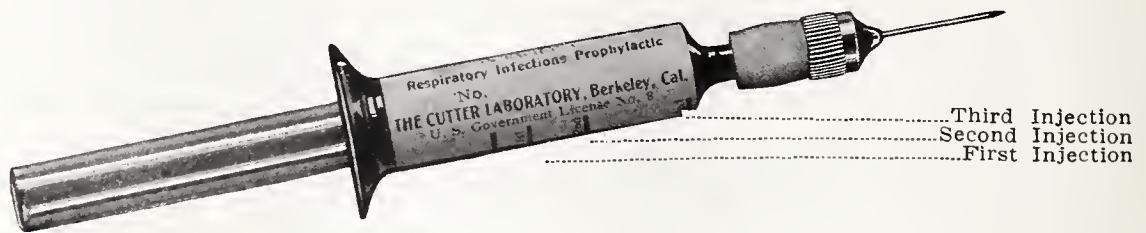
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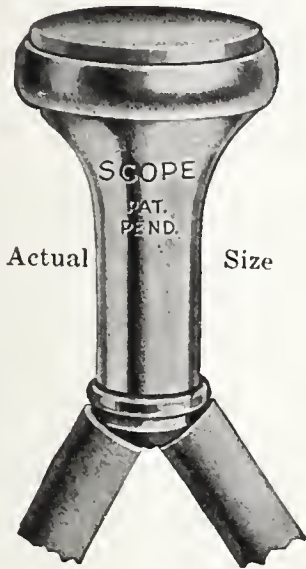
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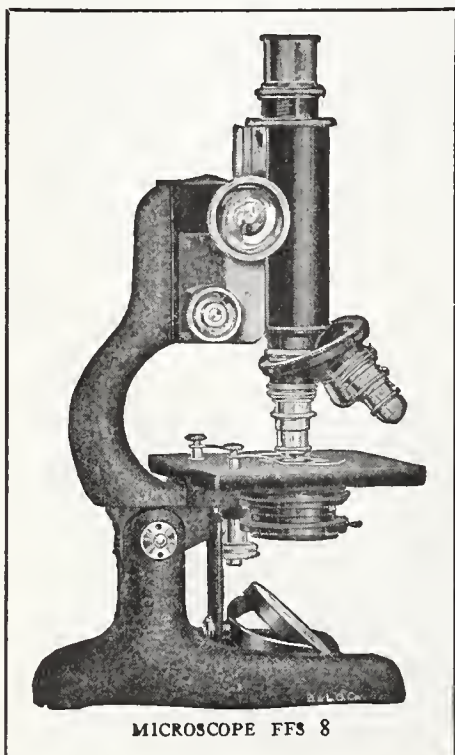
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New Association Formed—On the evening of October 26, representatives from various firms met for dinner in response to an invitation to "get together and get acquainted." The results of this gathering were that those present formed what will be known as the "California Surgical Appliance Association."

Mr. L. D. Gandion (president of the Clark-Gandion Company) was elected president of the association, Mr. C. H. Hittenberger of the C. H. Hittenberger Company was elected vice-president, Mr. Fred Bischoff of Bischoff's Surgical House, Oakland, California, as secretary, and Mrs. Irma Fulton of the Frank F. Wedekind Company, as treasurer.

The next meeting will be held the first Wednesday in December at which time the matter of price regulation of standard goods will no doubt be taken up and acted upon. Those present at the initial meeting were: Mr. A. Berbert, Mr. Theo. Schmidt, Mrs. L. D. Gandion, Dr. I. R. Fenner, Mr. Harms, Mr. G. Berbert, Mr. C. H. Hittenberger, Mr. L. Thors, Mr. H. Hennig, Mr. R. Travers, Mr. Stoll, Mr. D. Fox, Mr. I. M. Perry, Mr. Fulton, Mrs. Irma Fulton, Mr. C. H. Peterson, Mr. E. H. Markel, Mr. Huey, Mr. Fred Bischoff, Miss Butter, Mr. L. D. Gandion, and Miss A. C. Trenchard.

Commission on Juvenile Delinquency, France—A decree issued by the President of France on June 8, 1927, provides for the establishment of a National Commission on Juvenile Delinquency, to be attached to the Ministry of Justice. The commission will consist of twenty-five members appointed by the Minister of Justice, vacancies occurring later to be filled by the commission itself. It is to study questions of legislation and of the administration of institutions caring for delinquent children. It will also serve as a link between those institutions, coordinating their work and suggesting improvements.—U. S. Department of Labor.



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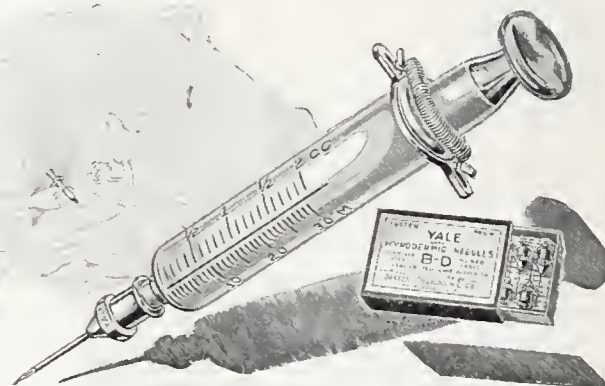
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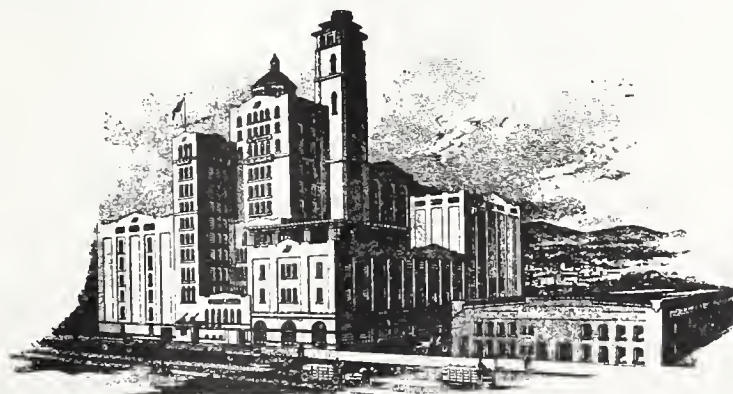
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Therefore, at this season we are content to relegate "shop talk" to the limbo of the eleven months gone by. We desire merely to make contagious our feeling of good cheer and to wish the members of the medical profession a Merry Christmas.



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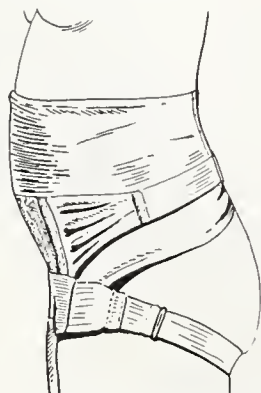
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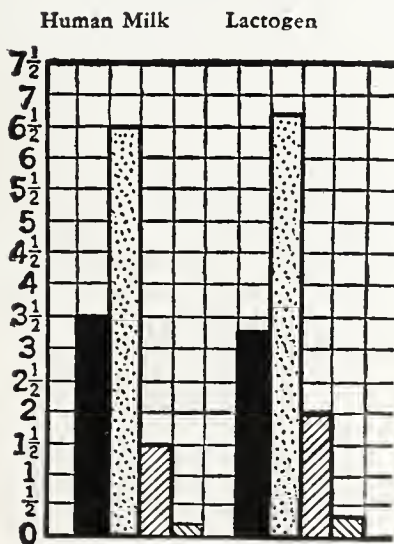
Artificial Feeding of infants their nutrition is considered in detail. It is sufficient to remark here that nature has provided for the baby a food which contains the nutritional elements, fat, sugar, and protein, in fairly definite proportions and in peculiar forms. Success in substitute feeding depends upon our ability to supply in suitable forms, and the child's ability to assimilate, a food containing the nutritive elements in approximately the quantities found in human milk."—Dr. Charles Gilmore Kerley in "THE PRACTICE OF PEDIATRICS," Page 18.

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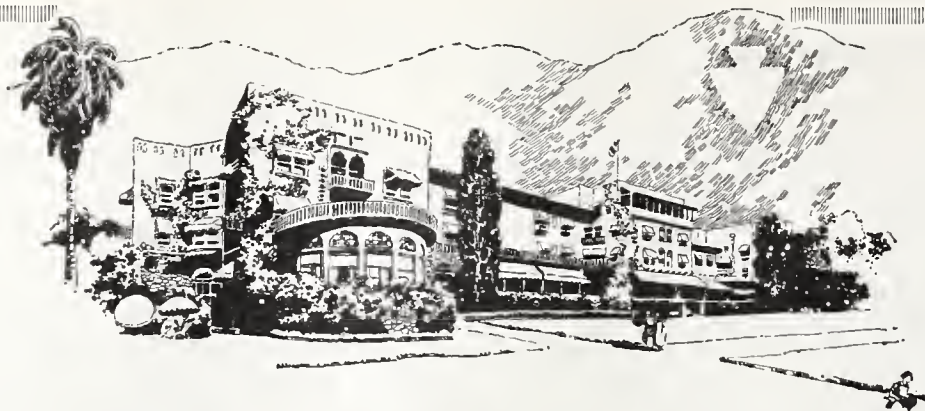
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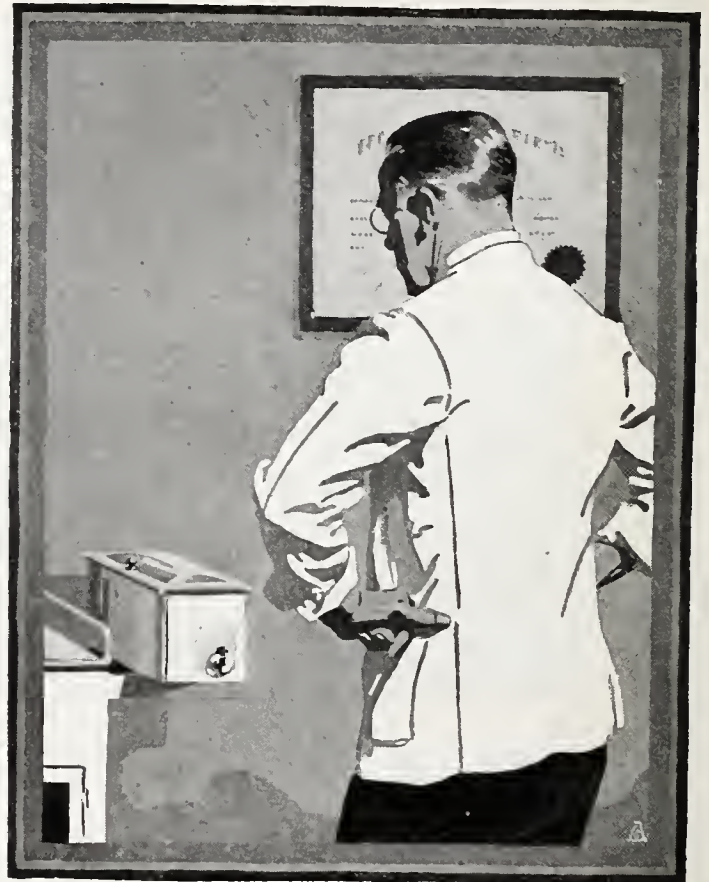
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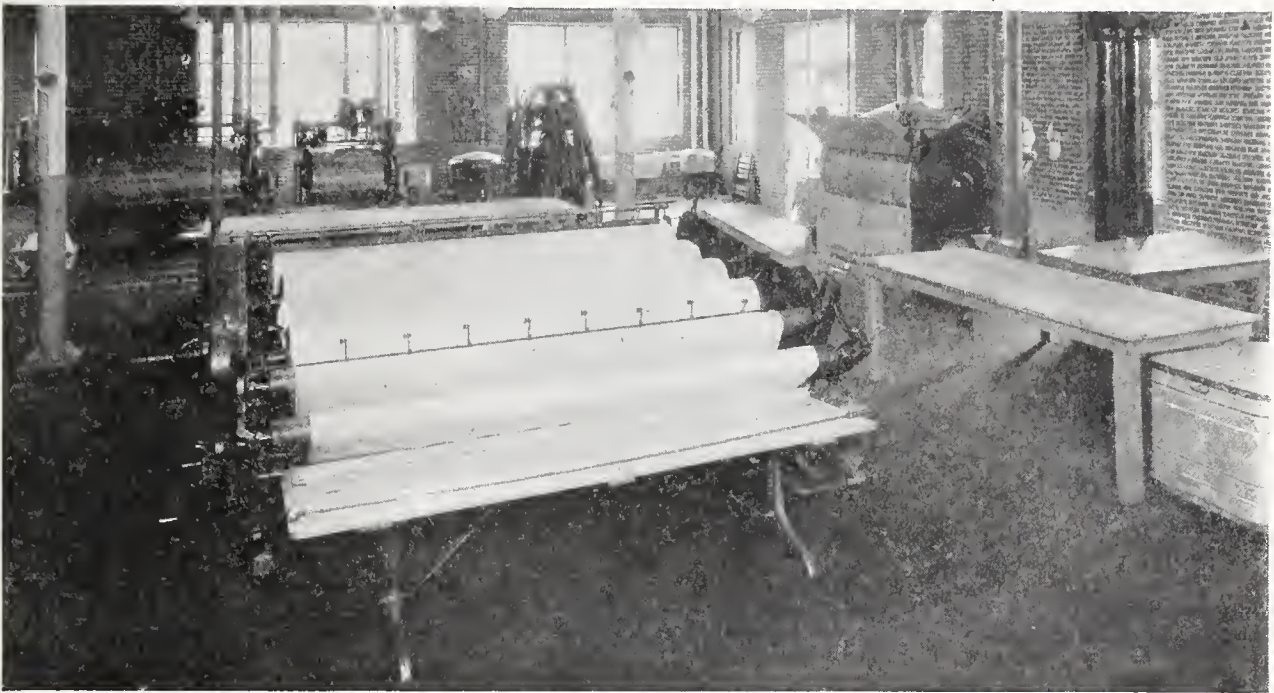
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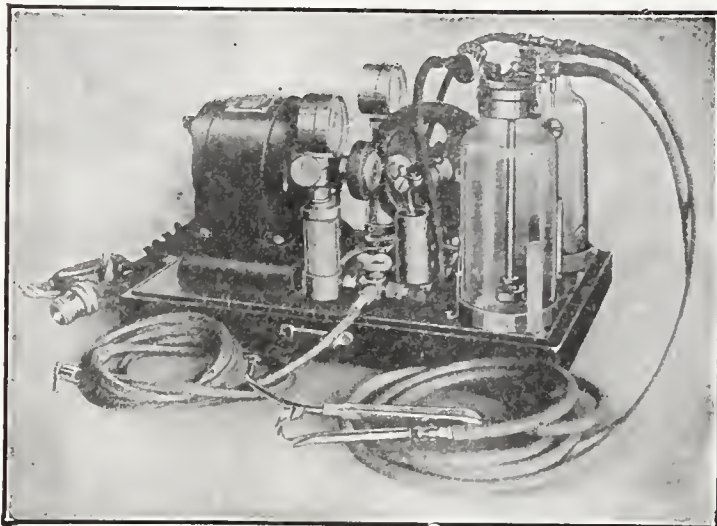
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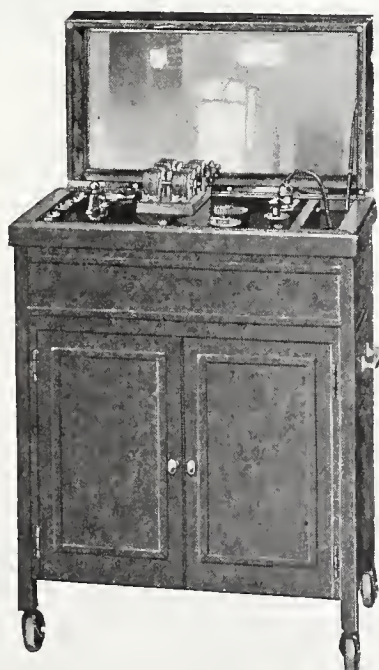
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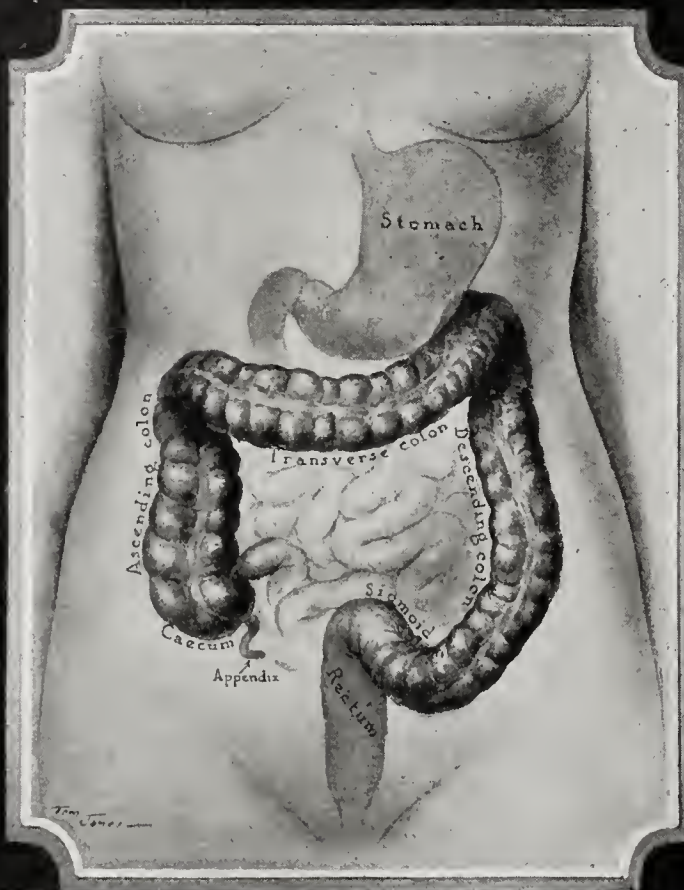
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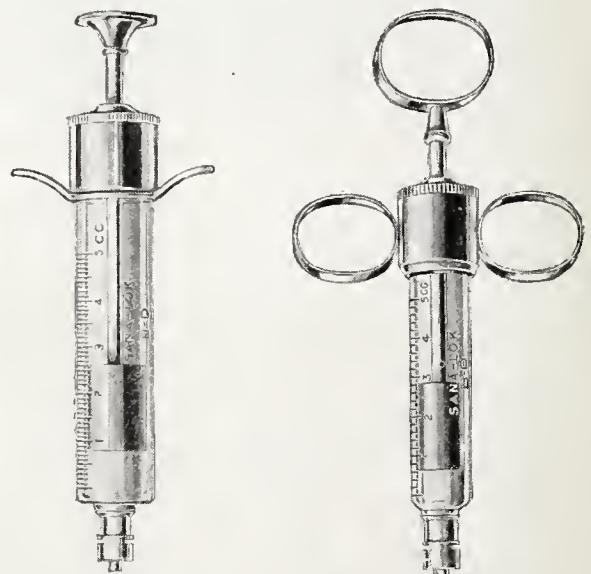
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